Appendix 16: Safety information sheets (SIS)

ConnectingChemistry

BRENNTAG

SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

sodium hypochlorite, solution 10 - 15%

Version 9.3 Print Date 2016/06/27

Revision date / valid from 2016/06/27 **MSDS code: MSHY100**

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name	:	sodium hypochlorite, solution 10 - 15%
Substance name	:	sodium hypochlorite, solution
Index-No.	:	017-011-00-1
CAS-No.	:	7681-52-9
EC-No.	:	231-668-3
EC Registration	:	01-2119488154-34-xxxx

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture	:	Identified use: See table in front of appendix for a complete overview of identified uses.
Uses advised against	:	At this moment we have not identified any uses advised against

1.3. Details of the supplier of the safety data sheet

Company	:	Brenntag UK & Ireland Albion House, Rawdon Park GB LS19 7XX Leeds Yeadon
Telephone	:	+44 (0) 113 3879 200
Telefax	:	+44 (0) 113 3879 280
E-mail address	:	msds@brenntag.co.uk

1.4. Emergency telephone number

Emergency telephone number	:	Emergency only telephone number (open 24 hours): +44 (0) 1865 407333 (N.C.E.C. Culham)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

REGULATION (EC) No 1272/2008			
Hazard class	**Hazard category**	**Target Organs**	**Hazard statements**
Corrosive to metals	Category 1	---	H290

Skin corrosion	Category 1B	---	H314
Acute aquatic toxicity	Category 1	---	H400
Chronic aquatic toxicity	Category 2	---	H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

Most important adverse effects

Human Health : See section 11 for toxicological information.

Physical and chemical hazards : See section 9 for physicochemical information.

Potential environmental effects : See section 12 for environmental information.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard symbols :

Signal word : Danger

Hazard statements :

H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention :

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response :

P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue

rinsing.

Additional Labelling:

EUH031 Contact with acids liberates toxic gas.

Hazardous components which must be listed on the label:

- sodium hypochlorite, solution
- sodium hydroxide

2.3. Other hazards

For Results of PBT and vPvB assessment see section 12.5.

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical nature : sodium hypochlorite
Aqueous solution

Hazardous components	Amount [%]	Classification (REGULATION (EC) No 1272/2008)	
		Hazard class / Hazard category	Hazard statements
sodium hypochlorite, solution			
Index-No. : 017-011-00-1 CAS-No. : 7681-52-9 EC-No. : 231-668-3 EC Registration : 01-2119488154-34-xxxx	>= 10 - <= 15	Met. Corr.1 Skin Corr.1B STOT SE3 Aquatic Acute1 Aquatic Chronic1	H290 H314 H335 H400 H410
sodium hydroxide			
Index-No. : 011-002-00-6 CAS-No. : 1310-73-2 EC-No. : 215-185-5 EC Registration : 01-2119457892-27-xxxx	>= 0 - < 5	Met. Corr.1 Skin Corr.1A	H290 H314

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice : Take off all contaminated clothing immediately.

If inhaled : In case of accident by inhalation: remove casualty to fresh air and keep at rest. If breathing is irregular or stopped, administer artificial respiration. Call a physician immediately.

In case of skin contact	: Wash off immediately with soap and plenty of water. If irritation appears or if the contamination is important, seek medical advice.
In case of eye contact	: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Consult an eye specialist immediately. Go to an ophthalmic hospital if possible.
If swallowed	: Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. If swallowed, do not induce vomiting - seek medical advice. If a person vomits when lying on his back, place him in the recovery position.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms	: Inhalation may provoke the following symptoms: Cough, Headache, Lung oedema
Effects	: Risk of serious damage to the lungs (by aspiration).

4.3. Indication of any immediate medical attention and special treatment needed

Treatment	: Treat symptomatically.Later control for pneumonia and lung oedema.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. The product itself does not burn.
Unsuitable extinguishing media	:	Exempt

5.2. Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Fire may cause evolution of: Chlorine, Hydrogen chloride gas, chlorine oxides

5.3. Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.Wear appropriate body protection (full protective suit)
Further advice	:	Cool closed containers exposed to fire with water spray.Heating will cause a pressure rise - with risk of bursting.Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Use personal protective equipment. Wear respiratory protection. Keep people away from and upwind of spill/leak. Provide adequate ventilation. Danger of slipping if spilled Avoid contact with skin and eyes. Do not breathe vapour.

6.2. Environmental precautions

Environmental precautions	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such cases.

6.3. Methods and materials for containment and cleaning up

Methods and materials for containment and cleaning up	:	Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders). Keep in suitable, closed containers for disposal. Do not keep the container sealed.
Further information	:	Treat recovered material as described in the section "Disposal considerations".

6.4. Reference to other sections

For personal protection see section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	:	Do not keep the container sealed. Handle and open container with care. Ensure adequate ventilation. Use personal protective equipment. Avoid contact with the skin and the eyes. Do not breathe vapours or spray mist. Use respirator with appropriate filter if vapours or aerosol are released. Emergency eye wash fountains and emergency showers should be available in the immediate vicinity.
Hygiene measures	:	Keep away from food, drink and animal feedingstuffs. Smoking, eating and drinking should be prohibited in the application area. Wash hands before breaks and at the end of workday. Take off all contaminated clothing immediately.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Keep in a cool, well-ventilated place. Keep in an area equipped with alkali resistant flooring. Keep only in the original container. Store in a receptacle equipped with a vent. Protect against light.
Advice on protection against fire and explosion	:	The product is not flammable. Normal measures for preventive fire protection.

Further information on storage conditions	:	Keep in a well-ventilated place. Protect against light. Store in cool place. Do not keep the container sealed.
Advice on common storage	:	Keep away from food, drink and animal feedingstuffs. Do not store together with acids and ammonium salts.
German storage class	:	8B: Non-combustible substances, corrosive
Storage temperature	:	-10 - 20 °C

7.3. Specific end use(s)

Specific use(s)	:	No information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Component:	**sodium hypochlorite, solution**	**CAS-No. 7681-52-9**

Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)

DNEL Workers, Acute - systemic effects, Acute - local effects, Inhalation	:	3.1 mg/m3
DNEL Workers, Long-term - systemic effects, Long-term - local effects, Inhalation	:	1.55 mg/m3
DNEL Workers, Long-term - local effects, Skin contact	:	0.5 %
DNEL Consumers, Long-term - systemic effects, Long-term - local effects, Inhalation	:	1.55 mg/m3
DNEL Consumers, short-term, Inhalation	:	3.1 mg/m3
DNEL Consumers, Long-term - systemic effects, Ingestion	:	0.26 mg/kg bw/day

Predicted No Effect Concentration (PNEC)

Fresh water	:	0.21 µg/l
Marine water	:	0.042 µg/l

Sewage treatment plant (STP)	:	0.03 mg/l
Intermittent releases	:	0.26 µg/l
Soil Exposition is not expected.	:	
Marine sediment Exposition is not expected.	:	
Fresh water sediment Exposition is not expected.	:	

Component:	sodium hydroxide	CAS-No. 1310-73-2

Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)

DNEL Workers, Long-term - local effects, Inhalation	:	1.0 mg/m3
DNEL Consumers, Long-term - local effects, Inhalation	:	1.0 mg/m3

Other Occupational Exposure Limit Values

UK. EH40 Workplace Exposure Limits (WELs), Short Term Exposure Limit (STEL):
2 mg/m3

ELV (IE), Short Term Exposure Limit (STEL):
2 mg/m3

Component:	chlorine	CAS-No. 7782-50-5

Other Occupational Exposure Limit Values

UK. EH40 Workplace Exposure Limits (WELs), Short Term Exposure Limit (STEL):
0.5 ppm, 1.5 mg/m3

EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, Short Term Exposure Limit (STEL):
0.5 ppm, 1.5 mg/m3
Indicative

ELV (IE), Short Term Exposure Limit (STEL):
0.5 ppm, 1.5 mg/m3
Indicative OELV

8.2. Exposure controls

Appropriate engineering controls

Refer to protective measures listed in sections 7 and 8.

Personal protective equipment

Respiratory protection

Advice	:	Use respirator with appropriate filter if vapours or aerosol are released. Recommended Filter type: Combination filter:B-P2 Combination filter:B-P3 For low vapor concentrations: EN 136. For higher concentrations: EN 137

Hand protection

Advice	:	Protective gloves complying with EN 374. The glove material has to be impermeable and resistant to the product / the substance / the preparation. Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact). Protective gloves should be replaced at first signs of wear.
Material	:	butyl-rubber
Break through time	:	8 h
Glove thickness	:	0.5 mm
Material	:	Polyvinylchloride
Break through time	:	8 h
Glove thickness	:	0.5 mm
Material	:	polychloroprene
Break through time	:	8 h
Glove thickness	:	0.5 mm

Eye protection

Advice	:	Safety glasses with side-shields conforming to EN166 Tightly fitting safety goggles

Skin and body protection

Advice	:	alkali resistant protective clothing (EN 340)

Environmental exposure controls

General advice	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such cases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form	:	liquid
Colour	:	yellowish green
Odour	:	slight chlorine
Odour Threshold	:	Currently we do not have any information from our supplier about this.
pH	:	> 11
Melting point/range	:	-17 °C
Boiling point/boiling range	:	110 °C
Flash point	:	Not applicable
Evaporation rate	:	Currently we do not have any information from our supplier about this.
Flammability (solid, gas)	:	does not ignite
Upper explosion limit	:	Not applicable
Lower explosion limit	:	Not applicable
Vapour pressure	:	Currently we do not have any information from our supplier about this.
Relative vapour density	:	> 1.0 (Air = 1.0)
Density	:	1.2 - 1.3 g/cm3
Water solubility	:	completely soluble
Partition coefficient: n-octanol/water	:	Currently we do not have any information from our supplier about this.
Auto-ignition temperature	:	Not applicable
Thermal decomposition	:	To avoid thermal decomposition, do not overheat.
Viscosity, dynamic	:	3.45 mPa.s (20 °C) (Aqueous, solution, 15 %)
Explosive properties	:	EU legislation: Not explosive
Explosivity	:	Product is not explosive.

Oxidizing properties	:	Currently we do not have any information from our supplier about this.

9.2. Other information

Corrosion to metals	:	Corrosive to metals

SECTION 10: Stability and reactivity

10.1. Reactivity

Advice	:	This product is a very reactive substance that can react with many inorganic and organic compounds.

10.2. Chemical stability

Advice	:	Decomposes on heating. Decomposes on exposure to light.

10.3. Possibility of hazardous reactions

Hazardous reactions	:	May develop chlorine if mixed with acidic solutions.

10.4. Conditions to avoid

Conditions to avoid	:	Heat
Thermal decomposition	:	To avoid thermal decomposition, do not overheat.

10.5. Incompatible materials

Materials to avoid	:	Acids, ammonium compounds, Acetic anhydride, Organic materials, Hydrogen peroxide, metal salts, Copper, Nickel, Iron

10.6. Hazardous decomposition products

Hazardous decomposition products	:	Hydrogen chloride gas, Chlorine, chlorine oxides

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Component:	sodium hypochlorite, solution	CAS-No. 7681-52-9
Acute toxicity		
Oral		
LD50	:	> 1100 mg/kg (Rat; Test substance: Chlorine) (OECD Test Guideline 401)
Inhalation		

LC50	:	> 10.5 mg/l (Rat; 1 h; Test substance: Chlorine) (OECD Test Guideline 403)

Dermal

LD50	:	> 20000 mg/kg (Rabbit; Test substance: Chlorine) (OECD Test Guideline 402)

Irritation

Skin

Result	:	Severe skin irritation (Rabbit) (OECD Test Guideline 404) corrosive effects (human)

Eyes

Result	:	Causes serious eye damage. (Rabbit) (OECD Test Guideline 405)

Sensitisation

Result	:	not sensitizing (Buehler Test; Guinea pig) (OECD Test Guideline 406)

CMR effects

CMR Properties

Carcinogenicity	:	Animal testing did not show any carcinogenic effects.
Mutagenicity	:	In vitro tests did not show mutagenic effects In vivo tests did not show mutagenic effects
Teratogenicity	:	Did not show teratogenic effects in animal experiments.
Reproductive toxicity	:	Animal testing did not show any effects on fertility.

Genotoxicity in vitro

Result	:	negative (Ames test; Salmonella typhimurium) (OECD Test Guideline 471) ambiguous (Chromosome aberration test in vitro; Chinese hamster fibroblasts) (OECD Test Guideline 473)

Genotoxicity in vivo

Result	:	negative (Chromosome aberration test in vivo; Mouse) (OECD Test Guideline 474)

negative (Chromosome aberration test in vivo; Mouse)
(OECD Test Guideline 475)

ambiguous (Effects on sperm morphology and melotic micronuclei; Mouse)

Teratogenicity

NOAEL Teratog.	:	5.7 mg/kg (Rat) Test substance Chlorine

Reproductive toxicity

NOAEL Parent	:	5 mg/kg (Rat) (Oral) Effects on fertility Test substance Chlorine

Specific Target Organ Toxicity

Single exposure

Inhalation	:	Target Organs: Respiratory system May cause respiratory irritation. Experience with human exposure

Repeated exposure

Remark	:	The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Other toxic properties

Repeated dose toxicity

NOAEL	:	50 mg/kg (Rat) (Oral; 90 Days) (OECD Test Guideline 408)

Aspiration hazard

No aspiration toxicity classification,

Further information

Other relevant toxicity information	:	If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

SECTION 12: Ecological information

12.1. Toxicity

Component:	sodium hypochlorite, solution	CAS-No. 7681-52-9
Acute toxicity		
Fish		
LC50	:	0.06 mg/l (Salmo gairdneri; 96 h)
NOEC	:	0.04 mg/l (Menidia peninsulae (tidewater silverside); 96 h)
Toxicity to daphnia and other aquatic invertebrates		
EC50	:	0.141 mg/l (Daphnia magna (Water flea); 48 h)
algae		
NOEC	:	0.0021 mg/l (algae; 7 Days) Fresh water
Bacteria		
EC50	:	> 3 mg/l (activated sludge; 3 h)
Chronic toxicity		
Fish		
NOEC	:	0.04 mg/l (Menidia peninsulae (tidewater silverside); 28 d)
Aquatic invertebrates		
NOEC	:	0.007 mg/l (Eastern oyster (Crassostrea virginica); 15 d) Marine water
M-Factor		
M-Factor (Acute Aquat. Tox.)	:	10
M-Factor (Chron. Aquat. Tox.)	:	1

12.2. Persistence and degradability

Component:	sodium hypochlorite, solution	CAS-No. 7681-52-9
Persistence and degradability		
Persistence		
Result	:	The product can be degraded by abiotic (e.g. chemical or photolytic) processes. decomposition by hydrolysis. Half-life in fresh-water < 1 day
Biodegradability		
Result	:	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Component:	sodium hypochlorite, solution	CAS-No. 7681-52-9
Bioaccumulation		
Result	:	log Kow -3.42 (20 °C) Does not bioaccumulate.

12.4. Mobility in soil

Component:	sodium hypochlorite, solution	CAS-No. 7681-52-9
Mobility		
Water	:	The product is mobile in water enviroment.
Soil	:	Highly mobile in soils
Air	:	not volatile (Henry's Constant)

12.5. Results of PBT and vPvB assessment

Component:	sodium hypochlorite, solution	CAS-No. 7681-52-9
Results of PBT and vPvB assessment		
Result	:	The PBT or vPvB criteria of Annex XIII to the REACH Regulation does not apply to inorganic substances.

12.6. Other adverse effects

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product	:	Disposal together with normal waste is not allowed. Special disposal required according to local regulations. Do not let product enter drains. Contact waste disposal services.
Contaminated packaging	:	Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning. Packagings that cannot be cleaned are to be disposed of in the same manner as the product.
European Waste Catalogue Number	:	No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in consultation with the regional waste disposer.

SECTION 14: Transport information

14.1. UN number

1791

14.2. UN proper shipping name

ADR : HYPOCHLORITE SOLUTION
RID : HYPOCHLORITE SOLUTION
IMDG : HYPOCHLORITE SOLUTION

14.3. Transport hazard class(es)

ADR-Class	:	8
(Labels; Classification Code; Hazard identification No; Tunnel restriction code)		8; C9; 80; (E)
RID-Class	:	8
(Labels; Classification Code; Hazard identification No)		8; C9; 80
IMDG-Class	:	8
(Labels; EmS)		8; F-A, S-B

14.4. Packaging group

ADR : III
RID : III
IMDG : III

14.5. Environmental hazards

Environmentally hazardous according to ADR	:	yes
Environmentally hazardous according to RID	:	yes
Marine Pollutant according to IMDG-Code	:	yes

14.6. Special precautions for user

Note : Not applicable

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

IMDG : Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Data for the product

Other regulations	:	Occupational restrictions: Take note of Dir 92/85/EEC on the safety and health of pregnant workers at work and of Dir 94/33/EC on the protection of young people at work.

Component: sodium hypochlorite, solution CAS-No. 7681-52-9

EU. Regulation EU No. 649/2012 concerning the export and import of dangerous chemicals	:	; The substance/mixture does not fall under this legislation.
EU. REACH, Annex XVII, Marketing and Use Restrictions (Regulation 1907/2006/EC)	:	Point Nos.: , 3; Listed
EU. Regulation No 1451/2007 [Biocides], Annex I, OJ (L 325)	:	EC Number: , 231-668-3; Listed
EU. Directive 2012/18/EU (SEVESO III) Annex I	:	Lower-tier requirements: 100 tonnes; Part 1: Categories of dangerous substances; E1: Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1 Upper-tier requirements: 200 tonnes; Part 1: Categories of dangerous substances; E1: Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1
UK. Releases to air and water (UK ISR)	:	Annual reporting level threshold: 10,000 kg
WGK (DE)	:	WGK 2: water endangering: 815; Classification source is Annex 2.

15.2. Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Further information

Key literature references and sources for data	:	Supplier information and data from the "Database of registered substances" of the European Chemicals Agency (ECHA) were used to create this safety data sheet.
Other information	:	Restricted to professional users. Attention - Avoid exposure - obtain special instructions before use.The information provided in this Safety Data Sheet is correct to our knowledge at the date of its revision. The information given only describes the products with regard to safety arrangements and is not to be considered as a warranty or quality specification and does not constitute a legal relationship. The information contained in this Safety Data Sheet relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

|| Indicates updated section.

sodium hypochlorite, solution 10 - 15%

No.	Short title	Main User Group (SU)	Sector of Use (SU)	Product Category (PC)	Process Category (PROC)	Environmental Release Category (ERC)	Article Category (AC)	Specified
1	Manufacture of substance	3	8	NA	1, 2, 3, 4, 8a, 8b, 9	1	NA	ES447
2	Use as an intermediate	3	8, 9	19	1, 2, 3, 4, 8a, 8b, 9	6a	NA	ES9182
3	Formulation & (re)packing of substances and mixtures	3	10	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15	2	NA	ES9179
4	Use in Cleaning Agents	3	4	35	5, 7, 8a, 9, 10, 13	6b	NA	ES9191
5	Use in Cleaning Agents	22	NA	35	5, 9, 10, 11, 13, 15	8a, 8b, 8d, 8e	NA	ES538
6	Use in sewage water treatment	3	23	20, 37	1, 2, 3, 4, 5, 8a, 8b, 9	6b	NA	ES9187
7	Use in paper industry	3	6b	26	1, 2, 3, 4, 5, 8a, 8b, 9	6b	NA	ES9189
8	Use in textile industry	3	5	34	1, 2, 3, 4, 5, 8a, 8b, 9, 13	6b	NA	ES9185
9	Consumer use	21	NA	34, 35, 37	NA	8a, 8b, 8d, 8e	NA	ES653

1. Short title of Exposure Scenario 1: Manufacture of substance	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU8: Manufacture of bulk, large scale chemicals (including petroleum products)
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Environmental Release Categories	ERC1: Manufacture of substances

2.1 Contributing scenario controlling environmental exposure for: ERC1		
Substance is a unique structure, Non-hydrophobic, Low potential to bioaccumulate.		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Amount used	Amounts used in the EU (tonnes/year)	999.999 ton(s)/year
Frequency and duration of use	Continuous exposure	360 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18,000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Substance release to air can be excluded
	Water	Risk from environmental exposure is driven by the freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water
	Soil	Substance release to soil can be excluded
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2,000 m3/d
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
	Physical Form (at time of	Liquid, moderate fugacity

	use)	
	Vapour pressure	25 hPa
	Process Temperature	90 °C
Frequency and duration of use	Exposure duration per day	8 h
	Frequency of use	5 days/week
Human factors not influenced by risk management	Body weight	70 kg
	Respiration volume under conditions of use	10 m3/day
	Light activity	
Other operational conditions affecting workers exposure	Indoor/Outdoor use.	
	Assumes activities are at ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance.	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus.	
Risk Management Measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, Relevant for all PROCs: EU RAR

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
Relevant for all PROCs	---	Worker - inhalative, long-term - local and systemic.	0.705mg/m³	0.4548
PROC1, PROC2, PROC3, PROC4	General exposures	Worker - inhalative, short-term - local and systemic	0.540mg/m³	0.1742
PROC1, PROC2, PROC3, PROC4	Laboratory activities	Worker - inhalative, short-term - local and systemic	0.252mg/m³	0.081
PROC1, PROC2, PROC3, PROC4	Equipment maintenance	Worker - inhalative, short-term - local and systemic	0.480mg/m³	0.155
PROC8a, PROC8b, PROC9	---	Worker - inhalative, short-term - local and systemic	0.498mg/m³	0.161

Qualitative assessment dermal. Contact is only accidental. The exposure estimate represents the 90th percentile of the exposure distribution.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Exposure values based on the EU Risk Assessment Report on chlorine (2007)

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time

1. Short title of Exposure Scenario 2: Use as an intermediate		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals	
Chemical product category	PC19: Intermediate	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	
Environmental Release Categories	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)	
2.1 Contributing scenario controlling environmental exposure for: ERC6a		
Substance is a unique structure, Non-hydrophobic, Low potential to bioaccumulate.		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Amount used	Amounts used in the EU (tonnes/year)	999.999 ton(s)/year
Frequency and duration of use	Continuous exposure	360 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18,000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Substance release to air can be excluded
	Water	Risk from environmental exposure is driven by the freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water
	Soil	Substance release to soil can be excluded
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2,000 m3/d
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9		
Product characteristics	Concentration of the Substance in	Covers percentage substance in the product up to 25 %.

	Mixture/Article	
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
	Process Temperature	90 °C
Frequency and duration of use	Exposure duration per day	8 h
	Frequency of use	5 days/week
Human factors not influenced by risk management	Body weight	70 kg
	Respiration volume under conditions of use	10 m3/day
	Light activity	
Other operational conditions affecting workers exposure	Indoor use.	
	Assumes activities are at ambient temperature., Outdoor location is covered by the worst case inside location	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance.	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus.	
Risk Management Measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9: Advanced REACH Tool (ART model)

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - local	0.02mg/m³	0.01
PROC2, PROC3	---	Worker - inhalative, long-term - local	1.10mg/m³	0.71
PROC4	---	Worker - inhalative, long-term - local	1.20mg/m³	0.77
PROC8a, PROC8b	---	Worker - inhalative, long-term - local	1.25mg/m³	0.81
PROC9	---	Worker - inhalative, long-term - local	0.91mg/m³	0.59

The short-term exposure is covered by the assessment of long-term exposure. Qualitative assessment dermal. Qualitative approach used to conclude safe use.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time

1. Short title of Exposure Scenario 3: Formulation & (re)packing of substances and mixtures	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC15: Use as laboratory reagent
Environmental Release Categories	ERC2: Formulation of preparations

2.1 Contributing scenario controlling environmental exposure for: ERC2		
Substance is a unique structure, Non-hydrophobic, Low potential to bioaccumulate.		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Amount used	Amounts used in the EU (tonnes/year)	999.999 ton(s)/year
Frequency and duration of use	Continuous exposure	360 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18,000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Substance release to air can be excluded
	Water	Risk from environmental exposure is driven by the freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water
	Soil	Substance release to soil can be excluded
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2,000 m3/d
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4,

PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
	Process Temperature	90 °C
Frequency and duration of use	Exposure duration per day	8 h
	Frequency of use	5 days/week
Human factors not influenced by risk management	Body weight	70 kg
	Respiration volume under conditions of use	10 m3/day
	Light activity	
Other operational conditions affecting workers exposure	Indoor/Outdoor use.	
	Assumes activities are at ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance. Ensure samples are obtained under containment or extract ventilation.	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus.	
Risk Management Measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15: EU RAR

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15	---	Worker - inhalative, long-term - local and systemic.	0.705mg/m³	0.4548
PROC1, PROC2, PROC3, PROC4, PROC5	General exposures	Worker - inhalative, short-term - local and systemic	0.540mg/m³	0.1742
PROC1, PROC2, PROC3, PROC4, PROC5	Laboratory activities	Worker - inhalative, short-term - local and systemic	0.252mg/m³	0.081

PROC1, PROC2, PROC3, PROC4, PROC5	Equipment maintenance	Worker - inhalative, short-term - local and systemic	0.480mg/m³	0.155
PROC8a, PROC8b, PROC9	---	Worker - inhalative, short-term - local and systemic	0.498mg/m³	0.161
PROC14	---	Worker - inhalative, long-term	0.23mg/m³	0.15

Qualitative assessment dermal. Contact is only accidental. The exposure estimate represents the 90th percentile of the exposure distribution.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Exposure values based on the EU Risk Assessment Report on chlorine (2007)

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time

1. Short title of Exposure Scenario 4: Use in Cleaning Agents	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU4: Manufacture of food products
Chemical product category	PC35: Washing and cleaning products (including solvent based products)
Process categories	PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring
Environmental Release Categories	ERC6b: Industrial use of reactive processing aids
Activity	Note: this Exposure Scenario is only relevant for an appropriated use according to the quality grade of the substance delivered

2.1 Contributing scenario controlling environmental exposure for: ERC6b		
Substance is a unique structure, Non-hydrophobic, Low potential to bioaccumulate.		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Amount used	Amounts used in the EU (tonnes/year)	999.999 ton(s)/year
Frequency and duration of use	Continuous exposure	360 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18,000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Substance release to air can be excluded
	Water	Risk from environmental exposure is driven by the freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water
	Soil	Substance release to soil can be excluded
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2,000 m3/d
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC5, PROC7, PROC8a, PROC9, PROC10, PROC13		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.

	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
	Process Temperature	90 °C
Frequency and duration of use	Exposure duration per day	8 h
	Frequency of use	5 days/week
Human factors not influenced by risk management	Body weight	70 kg
	Respiration volume under conditions of use	10 m3/day
	Light activity	
Other operational conditions affecting workers exposure	Indoor use.	
	Assumes activities are at ambient temperature., Outdoor location is covered by the worst case inside location	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance.	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus.	
Risk Management Measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

PROC5, PROC7, PROC8a, PROC9, PROC10, PROC13: Advanced REACH Tool (ART model)

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC5, PROC8a	---	Worker - inhalative, long-term - local	1.25mg/m³	0.81
PROC7	---	Worker - inhalative, long-term - local	1.20mg/m³	0.77
PROC9	---	Worker - inhalative, long-term - local	0.91mg/m³	0.59
PROC10	---	Worker - inhalative, long-term - local	1.00mg/m³	0.65
PROC13	---	Worker - inhalative, long-term - local	0.70mg/m³	0.45

The short-term exposure is covered by the assessment of long-term exposure. Qualitative assessment dermal.
Qualitative approach used to conclude safe use.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may

be necessary to define appropriate site-specific risk management measures.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time

1. Short title of Exposure Scenario 5: Use in Cleaning Agents	
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Chemical product category	PC35: Washing and cleaning products (including solvent based products)
Process categories	PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC15: Use as laboratory reagent
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8d, ERC8e

Substance is a unique structure, Non-hydrophobic, Low potential to bioaccumulate.

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 10%
Amount used	Amounts used in the EU (tonnes/year)	999999 ton(s)/year
Frequency and duration of use	Continuous exposure	360 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18,000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Substance release to air can be excluded
	Water	Risk from environmental exposure is driven by the freshwater., Do not release wastewater directly into environment., Do not let product enter drains., Onsite wastewater treatment required
	Soil	Substance release to soil can be excluded
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2,000 m3/d
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC5, PROC9, PROC10, PROC11, PROC13, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 10%
	Physical Form (at time of use)	Liquid, moderate fugacity

	Vapour pressure	25 hPa
	Process Temperature	90 °C
Frequency and duration of use	Exposure duration per day	8 h
	Frequency of use	5 days/week
Other operational conditions affecting workers exposure	Indoor/Outdoor use.	
	Assumes activities are at ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Avoid direct contact with the chemical/the product/the preparation by establishing organisational measures.	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection Personal measures have to be applied in case of potential exposure only.	
Risk Management Measures are based on qualitative risk characterisation.		
2.3 Contributing scenario controlling worker exposure for: PROC11		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 0% - 0.05%
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
	Process Temperature	90 °C
Amount used		0.005 kg
Frequency and duration of use	Exposure duration	120 min
	Frequency of use	4 Times per day
Other operational conditions affecting workers exposure	Indoor/Outdoor use.	
	Assumes activities are at ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.	
Organisational measures to prevent /limit releases, dispersion and exposure	Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Avoid direct contact with the chemical/the product/the preparation by establishing organisational measures.	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection	
Risk Management Measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

PROC11: EASE v2.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC11	---	Worker - inhalative, long-term - systemic	0.0017mg/m³	0.0011

Qualitative assessment dermal. Contact is only accidental. Exposure is considered negligible.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time

1. Short title of Exposure Scenario 6: Use in sewage water treatment		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU23: Recycling	
Chemical product category	PC20: Products such as ph-regulators, flocculants, pre-cipitants, neutralization agents PC37: Water treatment chemicals	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	
Environmental Release Categories	ERC6b: Industrial use of reactive processing aids	
2.1 Contributing scenario controlling environmental exposure for: ERC6b		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Amount used	Amounts used in the EU (tonnes/year)	999.999 ton(s)/year
Frequency and duration of use	Continuous exposure	360 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18,000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Substance release to air can be excluded
	Water	Risk from environmental exposure is driven by the freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water
	Soil	Substance release to soil can be excluded
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2,000 m3/d
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9		
Product characteristics	Concentration of the Substance in	Covers percentage substance in the product up to 25 %.

	Mixture/Article	
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
	Process Temperature	90 °C
Frequency and duration of use	Exposure duration per day	8 h
	Frequency of use	5 days/week
Human factors not influenced by risk management	Body weight	70 kg
	Respiration volume under conditions of use	10 m3/day
	Light activity	
Other operational conditions affecting workers exposure	Indoor use.	
	Assumes activities are at ambient temperature., Outdoor location is covered by the worst case inside location	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance.	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus.	
Risk Management Measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9: Advanced REACH Tool (ART model)

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - local	0.02mg/m³	0.01
PROC2, PROC3	---	Worker - inhalative, long-term - local	1.10mg/m³	0.71
PROC4	---	Worker - inhalative, long-term - local	1.20mg/m³	0.77
PROC5, PROC8a, PROC8b	---	Worker - inhalative, long-term - local	1.25mg/m³	0.81
PROC9	---	Worker - inhalative, long-term - local	0.91mg/m³	0.59

The short-term exposure is covered by the assessment of long-term exposure. Qualitative assessment dermal.
Qualitative approach used to conclude safe use.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time
These measures involve good personal and housekeeping practices (i.e. regular cleaning), no eating and smoking at the workplace, wearing of standard working clothes and shoes.

1. Short title of Exposure Scenario 7: Use in paper industry	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU6b: Manufacture of pulp, paper and paper products
Chemical product category	PC26: Paper and board dye, finishing and impregnation products: including bleaches and other processing aids
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Environmental Release Categories	ERC6b: Industrial use of reactive processing aids

2.1 Contributing scenario controlling environmental exposure for: ERC6b		
Substance is a unique structure, Non-hydrophobic, Low potential to bioaccumulate.		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Amount used	Amounts used in the EU (tonnes/year)	999.999 ton(s)/year
Frequency and duration of use	Continuous exposure	360 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18,000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Substance release to air can be excluded
	Water	Risk from environmental exposure is driven by the freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water
	Soil	Substance release to soil can be excluded
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2,000 m3/d
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
	Process Temperature	90 °C
Frequency and duration of use	Exposure duration per day	8 h
	Frequency of use	5 days/week
Human factors not influenced by risk management	Body weight	70 kg
	Respiration volume under conditions of use	10 m3/day
	Light activity	
Other operational conditions affecting workers exposure	Indoor use.	
	Assumes activities are at ambient temperature., Outdoor location is covered by the worst case inside location	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance.	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus.	
Risk Management Measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9: Advanced REACH Tool (ART model)

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - local	0.02mg/m³	0.01
PROC2, PROC3	---	Worker - inhalative, long-term - local	1.10mg/m³	0.71
PROC4	---	Worker - inhalative, long-term - local	1.20mg/m³	0.77
PROC5, PROC8a, PROC8b	---	Worker - inhalative, long-term - local	1.25mg/m³	0.81
PROC9	---	Worker - inhalative, long-term - local	0.91mg/m³	0.59

The short-term exposure is covered by the assessment of long-term exposure. Qualitative assessment dermal.
Qualitative approach used to conclude safe use.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time
These measures involve good personal and housekeeping practices (i.e. regular cleaning), no eating and smoking at the workplace, wearing of standard working clothes and shoes.

1. Short title of Exposure Scenario 8: Use in textile industry	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU5: Manufacture of textiles, leather, fur
Chemical product category	PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC13: Treatment of articles by dipping and pouring
Environmental Release Categories	ERC6b: Industrial use of reactive processing aids

2.1 Contributing scenario controlling environmental exposure for: ERC6b		
Substance is a unique structure, Non-hydrophobic, Low potential to bioaccumulate.		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Amount used	Amounts used in the EU (tonnes/year)	999.999 ton(s)/year
Frequency and duration of use	Continuous exposure	360 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18,000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Substance release to air can be excluded
	Water	Risk from environmental exposure is driven by the freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water
	Soil	Substance release to soil can be excluded
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2,000 m3/d
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC13

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
	Process Temperature	90 °C
Frequency and duration of use	Exposure duration per day	8 h
	Frequency of use	5 days/week
Human factors not influenced by risk management	Body weight	70 kg
	Respiration volume under conditions of use	10 m3/day
	Light activity	
Other operational conditions affecting workers exposure	Indoor use.	
	Assumes activities are at ambient temperature., Outdoor location is covered by the worst case inside location	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance.	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus.	
Risk Management Measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC13: Advanced REACH Tool (ART model)

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - local	0.02mg/m³	0.01
PROC2, PROC3	---	Worker - inhalative, long-term - local	1.10mg/m³	0.71
PROC4	---	Worker - inhalative, long-term - local	1.20mg/m³	0.77
PROC5, PROC8a, PROC8b	---	Worker - inhalative, long-term - local	1.25mg/m³	0.81
PROC9	---	Worker - inhalative, long-term - local	0.91mg/m³	0.59
PROC13	---	Worker - inhalative, long-term - local	0.70mg/m³	0.45

The short-term exposure is covered by the assessment of long-term exposure. Qualitative assessment dermal. Qualitative approach used to conclude safe use.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time

1. Short title of Exposure Scenario 9: Consumer use	
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids PC35: Washing and cleaning products (including solvent based products) PC37: Water treatment chemicals
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8d, ERC8e

Substance is a unique structure, Non-hydrophobic, Low potential to bioaccumulate.

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 10%
Amount used	Amounts used in the EU (tonnes/year)	999999 ton(s)/year
Frequency and duration of use	Continuous exposure	360 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18,000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Substance release to air can be excluded
	Water	Risk from environmental exposure is driven by the freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2,000 m3/d
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling consumer exposure for: PC35: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 0% - 3%
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
Amount used	Amount used per event	0.005 kg
Frequency and duration of use	Exposure duration	7.5 min
	Frequency of use	4 Times per day

Other given operational conditions affecting consumers exposure	Indoor use.	
	Room size	4 m3
	Ventilation rate per hour	0.5
2.3 Contributing scenario controlling consumer exposure for: PC35		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 0% - 0,5%
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
Frequency and duration of use	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Palm of one Hand 420 cm²
Other given operational conditions affecting consumers exposure	Indoor use.	
	Room size	4 m3
	Ventilation rate per hour	0.5
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Wear impervious chemical resistant protective gloves.
2.4 Contributing scenario controlling consumer exposure for: PC34		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 0% - 0.05%
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
Frequency and duration of use	Frequency of use	2 days/week
Human factors not influenced by risk management	Exposed skin areas	Two hands 820 cm²
Other given operational conditions affecting consumers exposure	Indoor use.	
	Room size	4 m3
	Ventilation rate per hour	0.5
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Wear impervious chemical resistant protective gloves.
2.5 Contributing scenario controlling consumer exposure for: PC37		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 0% - 0,1%
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
Amount used		2000 mL
Frequency and duration of use	Frequency of use	1 Times per day

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Consumers

PC34, PC35: EU RAR

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC34	Laundry bleaching/pre-treatment	Consumer - inhalative, long-term - systemic	1.68µg/m³	0.000108
PC35	Hard surface cleaning	Consumer - inhalative, long-term - systemic	1.68µg/m³	0.000108
PC34	Laundry bleaching/pre-treatment	Consumer - dermal, long-term - local	0.035mg/kg bw/day	< 1
PC35	Hard surface cleaning	Consumer - dermal, long-term - local	0.002mg/kg bw/day	< 1
---	Drinking water, adult	Consumer oral, acute	0.0003mg/kg bw/day	---
---	Drinking water, adult	Consumer oral, long-term	0.003mg/kg bw/day	0.011
---	Drinking water, children	Consumer oral, acute	0.0007mg/kg bw/day	---
---	Drinking water, children	Consumer oral, long-term	0.0033mg/kg bw/day	0.011

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

SAFETY DATA SHEET

ODOURLESS KEROSENE

Compilation date: 23/09/2016

Revision No: 1

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: ODOURLESS KEROSENE

Product code: ODKEGEN

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of substance / mixture: PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations* or articles by tabletting, compression, extrusion, pelletisation PROC15: Use as laboratory reagent ERC1: Manufacture of substances ERC2: Formulation of preparations* ERC3: Formulation in materials ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC5: Industrial use resulting in inclusion into or onto a matrix ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates) ERC6b: Industrial use of reactive processing aids ERC7: Industrial use of substances in closed systems

1.3. Details of the supplier of the safety data sheet

Company name: J.V. Barrett & Co Ltd
St Ivel way
Warmley
Bristol
BS30 8TY
United Kingdom

Tel: 01179600060

Fax: 01179352437

Email: sales@barrettine.co.uk

1.4. Emergency telephone number

Emergency tel: +44 (0) 1179 600060 (Office hours only 8am - 5pm Mon- Thurs. 8 am - 4.30 pm Fri.)
+44 (0) 1270 502891 (Out of hours emergency number)

[cont...]

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: Asp. Tox. 1: H304; -: EUH066

Most important adverse effects: Repeated exposure may cause skin dryness or cracking. May be fatal if swallowed and enters airways.

2.2. Label elements

Label elements:

Hazard statements: EUH066: Repeated exposure may cause skin dryness or cracking.

H304: May be fatal if swallowed and enters airways.

Hazard pictograms: GHS08: Health hazard

Signal words: Danger

Precautionary statements: P262: Do not get in eyes, on skin, or on clothing.

P301+310: IF SWALLOWED: Immediately call a POISON CENTER/doctor.

P331: Do NOT induce vomiting.

P404: Store in a closed container.

P501: Dispose of contents/container to hazardous or special waste collection point.

2.3. Other hazards

PBT: This product is not identified as a PBT/vPvB substance.

Section 3: Composition/information on ingredients

3.1. Substances

Chemical identity: HYDROCARBONS, C11-C14, N-ALKANES, ISOALKANES, CYCLICS, <2% AROMATICS

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Wash immediately with plenty of soap and water.

Eye contact: Bathe the eye with running water for 15 minutes.

Ingestion: Wash out mouth with water.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: There may be irritation of the throat.

Inhalation: No symptoms.

Delayed / immediate effects: No symptoms.

[cont...]

4.3. Indication of any immediate medical attention and special treatment needed

Immediate / special treatment: Not applicable.

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Suitable extinguishing media for the surrounding fire should be used. Use water spray to cool containers.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: In combustion emits toxic fumes.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Refer to section 8 of SDS for personal protection details. Turn leaking containers leak-side up to prevent the escape of liquid. Mark out the contaminated area with signs and prevent access to unauthorised personnel.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers. Contain the spillage using bunding.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Absorb into dry earth or sand. Transfer to a closable, labelled salvage container for disposal by an appropriate method.

6.4. Reference to other sections

Reference to other sections: Refer to section 8 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Ensure there is sufficient ventilation of the area. Avoid direct contact with the substance.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in a cool, well ventilated area. Keep container tightly closed. The floor of the storage room must be impermeable to prevent the escape of liquids.

7.3. Specific end use(s)

Specific end use(s): No data available.

[cont...]

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits: No data available.

DNEL/PNEC Values

DNEL / PNEC No data available.

8.2. Exposure controls

Engineering measures: The floor of the storage room must be impermeable to prevent the escape of liquids.

Respiratory protection: Respiratory protection not required.

Hand protection: Protective gloves.

Eye protection: Safety glasses.

Skin protection: Protective clothing.

Environmental: The floor of the storage room must be impermeable to prevent the escape of liquids.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Liquid

Colour: Pale yellow

Odour: Hydrocarbons

Evaporation rate: No data available.

Oxidising: Non-oxidising (by EC criteria)

Solubility in water: Immiscible with water

Also soluble in: Most organic solvents.

Viscosity: No data available.

Kinematic viscosity: <2.0 mm2/s

Viscosity test method: @ 40oC ASTM D 445

Boiling point/range°C: 190-280 @ 15oC

Melting point/range°C: No data available.

Flammability limits %: lower: 0.6

upper: 8

Flash point°C: 62 CC

Part.coeff. n-octanol/water: No data available.

Autoflammability°C: 220

Vapour pressure: 0.15 hPa @ 20oC

Relative density: 0.820 @ 15oC

pH: Not applicable.

VOC g/l: No data available.

9.2. Other information

Other information: Not applicable.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

[cont...]

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions: Hazardous reactions will not occur under normal transport or storage conditions.

10.4. Conditions to avoid

Conditions to avoid: Heat.

10.5. Incompatible materials

Materials to avoid: Strong oxidising agents. Strong acids.

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes.

Section 11: Toxicological information

11.1. Information on toxicological effects

Hazardous ingredients:

HYDROCARBONS, C11-C14, N-ALKANES, ISOALKANES, CYCLICS, <2% AROMATICS

DERMAL	RBT	LD50	>5000	mg/kg
ORAL	RAT	LD50	>5000	mg/kg
VAPOURS	RAT	8H LC50	>5000	mg/kg

Relevant hazards for product:

Hazard	Route	Basis
Aspiration hazard	-	Hazardous: calculated

Excluded hazards for substance:

Hazard	Route	Basis
Acute toxicity (ac. tox. 4)	-	No hazard: calculated
Acute toxicity (ac. tox. 3)	-	No hazard: calculated
Acute toxicity (ac. tox. 2)	-	No hazard: calculated
Acute toxicity (ac. tox. 1)	-	No hazard: calculated
Skin corrosion/irritation	-	No hazard: calculated
Serious eye damage/irritation	-	No hazard: calculated
Respiratory/skin sensitisation	-	No hazard: calculated
Germ cell mutagenicity	-	No hazard: calculated
Carcinogenicity	-	No hazard: calculated
Reproductive toxicity	-	No hazard: calculated

[cont...]

STOT-single exposure	-	No hazard: calculated
STOT-repeated exposure	-	No hazard: calculated

Symptoms / routes of exposure

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: There may be irritation of the throat.

Inhalation: No symptoms.

Delayed / immediate effects: No symptoms.

Section 12: Ecological information

12.1. Toxicity

Hazardous ingredients:

HYDROCARBONS, C11-C14, N-ALKANES, ISOALKANES, CYCLICS, <2% AROMATICS

ALGAE	72H ErL50	>1000	mg/l
Daphnia magna	48H EL50	>1000	mg/l
RAINBOW TROUT (Oncorhynchus mykiss)	96H LL50	> 1000	mg/l

12.2. Persistence and degradability

Persistence and degradability: Not biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential: Bioaccumulation potential.

12.4. Mobility in soil

Mobility: Readily absorbed into soil.

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT/vPvB substance.

12.6. Other adverse effects

Other adverse effects: Toxic to aquatic organisms. Toxic to soil organisms.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Transfer to a suitable container and arrange for collection by specialised disposal company.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

Transport class: This product does not require a classification for transport.

[cont...]

Section 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Specific regulations: Not applicable.

15.2. Chemical Safety Assessment

Chemical safety assessment: A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 2015/830.

* indicates text in the SDS which has changed since the last revision.

Phrases used in s.2 and s.3: EUH066: Repeated exposure may cause skin dryness or cracking.

H304: May be fatal if swallowed and enters airways.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

Conforms to EU Regulation 1907/2006/EC as amended. - SDSGHS_GB

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : Hercobond™ 2515
Dry Strength Resin
™ Trademark, Solenis or its subsidiaries or affiliates, registered in various countries

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture : Production aid for use in the pulp & paper industry

1.3 Details of the supplier of the safety data sheet	**1.4 Emergency telephone number**
Solenis Fascinatio Boulevard 522 2909 VA CAPELLE A/D IJSSEL Netherlands EHSProductSafetyTeam@solenis.com	00 800-7653-6471 , or contact your local emergency telephone number at 112 **Product Information** Contact your local Solenis representative

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

Additional Labelling:

EUH210 Safety data sheet available on request.

2.3 Other hazards

Additional advice

No information available.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

An aqueous solution of an anionic polymer

Hazardous components

Remarks : No hazardous ingredients

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : No hazards which require special first aid measures.

If inhaled : If breathed in, move person into fresh air.
If unconscious place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of skin contact : If on skin, rinse well with water.
First aid is not normally required. However, it is recommended that exposed areas be cleaned by washing with soap and water.

In case of eye contact : Flush eyes with water as a precaution.
Remove contact lenses.
Protect unharmed eye.
If eye irritation persists, consult a specialist.

If swallowed : Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include:
stomach or intestinal upset (nausea, vomiting, diarrhea)
irritation (nose, throat, airways)

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : No hazards which require special first aid measures.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Water spray
Foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : carbon dioxide and carbon monoxide
nitrogen oxides (NOx)

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

Specific extinguishing methods : Product is compatible with standard fire-fighting agents.

Further information : Standard procedure for chemical fires.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment.
Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.
Comply with all applicable federal, state, and local regulations.

6.2 Environmental precautions

Environmental precautions : Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Avoid contact with skin and eyes.
Smoking, eating and drinking should be prohibited in the application area.
For personal protection see section 8.
Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Hygiene measures : Wash hands before breaks and at the end of workday. When using do not eat or drink. When using do not smoke.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep container tightly closed in a dry and well-ventilated place. Electrical installations / working materials must comply with the technological safety standards.

Other data : No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Engineering measures

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Personal protective equipment

Eye protection : Not required under normal conditions of use. Wear splash-proof safety goggles if material could be misted or splashed into eyes.

Hand protection

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Skin and body protection : Wear as appropriate:
Impervious clothing
Safety shoes
Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Discard gloves that show tears, pinholes, or signs of wear.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	liquid
Colour	:	yellow
Odour	:	odourless
Odour Threshold	:	No data available
pH	:	6,5 - 7,5
Melting point/freezing point	:	-3 °C
Boiling point/boiling range	:	No data available
Flash point	:	Not applicable
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapour pressure	:	No data available
		No data available

Relative vapour density	:	No data available
Relative density	:	No data available
Density	:	1,02 - 1,08 g/cm3
Solubility(ies)		
Water solubility	:	dispersible
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Thermal decomposition	:	No data available
Viscosity		
Viscosity, dynamic	:	2.000 - 3.000 mPa.s (20 °C)
Viscosity, kinematic	:	No data available
Oxidizing properties	:	No data available

9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if stored and applied as directed.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Product will not undergo hazardous polymerization.

10.4 Conditions to avoid

Conditions to avoid : Freezing temperatures.
Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid : N-nitrosamines
strong alkalis

strong mineral acids
Strong oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products : carbon dioxide and carbon monoxide
Nitrogen oxides (NOx)

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Information on likely routes of exposure : Inhalation
Skin contact
Eye Contact
Ingestion

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity : LD 50 (Rat): > 5.000 mg/kg

Acute dermal toxicity : LD 50 (Rat): Expected > 2.000 mg/kg

Skin corrosion/irritation

Not classified based on available information.

Serious eye damage/eye irritation

Not classified based on available information.

Product:

Result: Mildly irritating to eyes

Remarks: Unlikely to cause eye irritation or injury.

Respiratory or skin sensitisation

Skin sensitisation: Not classified based on available information.
Respiratory sensitisation: Not classified based on available information.

Germ cell mutagenicity

Not classified based on available information.

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

Aspiration hazard

Not classified based on available information.

Further information

Product:

Remarks: No data available

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish	:	LC 50 (Zebra danio (Danio rerio)): > 100 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC 50 (Water flea (Daphnia magna)): > 100 mg/l Exposure time: 48 h
Toxicity to algae	:	IC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201

12.2 Persistence and degradability

Product:

Biodegradability	:	Biodegradation: > 70 % Exposure time: 28 d

12.3 Bioaccumulative potential

Product:

Bioaccumulation	:	Remarks: The substance has low potential for bioaccumulation. Remarks: The bioaccumulation potential cannot be determined.

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Not relevant

12.6 Other adverse effects

Product:

Additional ecological information : No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not re-use empty containers.

SECTION 14: Transport information

14.1 UN number

ADR: Not dangerous goods
ADNR: Not dangerous goods
RID: Not dangerous goods
INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods

14.2 UN proper shipping name

ADR: Not dangerous goods
ADNR: Not dangerous goods
RID: Not dangerous goods
INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods

14.3 Transport hazard class(es)

ADR: Not dangerous goods

ADNR: Not dangerous goods
RID: Not dangerous goods
INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods

14.4 Packing group

ADR: Not dangerous goods
ADNR: Not dangerous goods
RID: Not dangerous goods
INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods

14.5 Environmental hazards

ADR: Not applicable
ADNR: Not applicable
RID: Not applicable
INTERNATIONAL MARITIME DANGEROUS GOODS: Not applicable
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not applicable
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not applicable
`

14.6 Special precautions for user

Not applicable

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Ship Type: Not applicable
Hazard code(s): Not applicable
Pollutant Category: Not applicable

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 57).	:	Not applicable
REACH - List of substances subject to authorisation (Annex XIV)	:	Not applicable
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances,	:	Not applicable

preparations and articles (Annex XVII)

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.
Not applicable

The components of this product are reported in the following inventories:

TSCA	:	On the inventory, or in compliance with the inventory
DSL		On the inventory, or in compliance with the inventory
AUSTR		On the inventory, or in compliance with the inventory
ENCS		On the inventory, or in compliance with the inventory
KECL		On the inventory, or in compliance with the inventory
IECSC		On the inventory, or in compliance with the inventory
PHIL		On the inventory, or in compliance with the inventory
NZIOC		Not in compliance with the inventory

Inventories
AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

15.2 Chemical safety assessment
No data available

SECTION 16: Other information

Further information
Revision Date: 06.07.2016

Full text of H-Statements referred to under section 3.

Further information
Other information : The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance

of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by the Solenis Environmental Health and Safety Department.

Sources of key data used to compile the Safety Data Sheet
Key literature references and sources of data
SOLENIS Internal data
SOLENIS internal data including own and sponsored test reports
The UNECE administers regional agreements implementing harmonised classification for labelling (GHS) and transport.

List of abbreviations and acronyms that could be, but not necessarily are, used in this safety data sheet :

ACGIH : American Conference of Industrial Hygienists
BEI : Biological Exposure Index
CAS : Chemical Abstracts Service (Division of the American Chemical Society).
CMR : Carcinogenic, Mutagenic or Toxic for Reproduction
FG : Food grade
GHS : Globally Harmonized System of Classification and Labeling of Chemicals.
H-statement : Hazard Statement
IATA : International Air Transport Association.
IATA-DGR : Dangerous Goods Regulation by the “International Air Transport Association” (IATA).
ICAO : International Civil Aviation Organization
ICAO-TI (ICAO) : Technical Instructions by the “International Civil Aviation Organization”
IMDG : International Maritime Code for Dangerous Goods
ISO : International Organization for Standardization
logPow : octanol-water partition coefficient
LCxx : Lethal Concentration, for xx percent of test population
LDxx : Lethal Dose, for xx percent of test population.
ICxx : Inhibitory Concentration for xx of a substance
Ecxx : Effective Concentration of xx
N.O.S.: Not Otherwise Specified
OECD : Organization for Economic Co-operation and Development
OEL : Occupational Exposure Limit
P-Statement : Precautionary Statement
PBT : Persistent , Bioaccumulative and Toxic
PPE : Personal Protective Equipment
STEL : Short-term exposure limit
STOT : Specific Target Organ Toxicity
TLV : Threshold Limit Value
TWA : Time-weighted average
vPvB : Very Persistent and Very Bioaccumulative
WEL : Workplace Exposure Level

ABM : Water Hazard Class for the Netherlands
ADR : Agreement concerning the International Carriage of Dangerous Goods by Road.
ADNR: Regulation for the Carriage of Dangerous Substances on the Rhine

CLP : Classification, Labelling and Packaging
CSA : Chemical Safety Assessment
CSR : Chemical Safety Report
DNEL : Derived No Effect Level.
EINECS : European Inventory of Existing Commercial Chemical Substances.
ELINCS : European List of Notified Chemical Substances
PEC : Predicted Effect Concentration
PEL : Permissible Exposure Limits
PNEC : Predicted No Effect Concentration
R-phrase : Risk phrase
REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals
RID : Regulation Concerning the International Transport of Dangerous Goods by Rail
S-phrase: Safety phrase
WGK : German Water Hazard Class

SECTION 1. IDENTIFICATION OF SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1. Product Identifier

Name of Product CREPETECH DT

Synonyms None

Issue Date 11 AUG 2018

Version Number 01

1.2. Relevant Identified uses of the substance or mixture and uses advised against

Identified Uses Industrial

Uses Advised Against None known

1.3. Details of the supplier of the safety data sheet

Company
Process Applications Ltd.
1126 Taylorsville Rd
Washington Crossing, PA 18977
USA

Contact
phone: +1 215 493 9361
Fax: +1 215 321 7152
Email: info@palpaperchem.com

Emergency Phone Number +1 215 493 9361

SECTION 2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification according to Directive 67/548/EEC or 1999/45/EC as amended

This mixture does not meet the criteria for classification according to Directive 67/548/EEC as amended.

Classification according to Regulation (EC) No 1272/2008 as amended

This mixture does not meet the criteria for classification according to Regulation (EC) 1272/2008 as amended.

Hazard Summary

Physical Hazards Not classified for physical hazards.

Health Hazards Not classified for health hazards.

Environmental l Hazards Not classified for hazards to the environment.

Specific Hazards No hazards resulting from the material as supplied

Main Symptoms Symptoms may include minor eye and skin irritation

2.2. Label Elements

Label according to Regulation (EC) No 1272/2008 as amended

Hazard Pictograms None

Signal word None

Hazard Statements None

Precautionary Statements

Prevention None

Response None

Storage None

Disposal None

Supplemental Label Information None

2.3. Other Hazards See section 11 for additional information on health hazards.

SECTION 3. COMPOSITION AND INFORMATION ON INGREDIENTS

3.1 Substances Proprietary

Hazardous Components	CAS Number	EINECS	Classification	Concentration (%)

Impurities which Contribute to the Classification of the Substance

There are no impurities which contribute to the classification of the substance.

SECTION 4. FIRST-AID MEASURES

General Information Contact physician if discomfort continues

4.1. Description of first aid measures

Inhalation Remove to fresh air. Rest in half-upright position. Seek medical attention if necessary.

Skin Contact Wash skin thoroughly with soap and water. Remove contaminated clothing and launder before re-use. Seek medical attention if irritation occurs.

Eye Contact Immediately flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Remove contact lenses. Get medical attention if irritation occurs.

Ingestion If conscious, immediately rinse mouth and drink two large glasses of water. Seek medical attention. Never give anything by mouth to an unconscious person.

4.2. Most Important Symptoms and Effects both Acute and Delayed

Possible irritation of the eyes and skin

4.3. Indication of any Immediate Medical Attention and Special Treatment Needed

Treat symptomatically

General Information Contact physician if discomfort continues

SECTION 5. FIRE-FIGHTING MEASURES

General Fire Hazards No unusual fire or explosion hazards noted.

5.1. Extinguishing Media

Suitable Extinguishing Media Dry chemical, water fog, regular foam.

Unsuitable Extinguishing Media No data available.

5.2. Special Hazards arising from the substance or mixture

Not classified as flammable or combustible. No unusual fire or explosion hazards noted. Organic Solids may burn, but only after removal of water and exposure to intense heat and flame. Un-vented containers can build up pressure if exposed to heat (fire) and rupture violently.

5.3. Advice for Firefighters

Special Protective Equipment for Firefighters

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus and face mask.

Special Fire Fighting Procedures

Cool containers exposed to flames with water until well after fire is out. Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Use pressurized air mask if the product is involved in a fire.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

Non-Emergency Personnel Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Emergency Responders Keep unnecessary personnel away. Use personal protection recommended in Section 8 or the SDS

6.2. Environmental Precautions

Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewer, basements or confined areas. Avoid discharge to the aquatic environment. Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and Materials for Containment and Cleaning up

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb and place into containers. Following product recovery, flush area with water

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills in the original container for re-use.

6.4.. Reference to Other Sections Personal protection see section 8. Waste disposal see section 13.

SECTION 7. HANDLING AND STORAGE

7.1.Precautions for Safe Handling

- Use in a well-ventilated area.
- Avoid inhalation and contact with eyes, skin or clothing through proper protection.
- Wash thoroughly after handling and remove contaminated clothing promptly.
- Emergency eyewashes and showers shall be located in accessible locations.
- Unvented Containers may develop pressure. Open with caution.

7.2. Conditions for Safe Storage

- Keep away from heat, sparks and open flame
- Store in a covered and well-ventilated area, away from sunlight.
- For maximum storage life, store at temperatures below 77°F (25°C).

- Do not freeze.
- Eyewash stations and safety showers should be easily accessible.
- Keep containers closed when not in use
- Recommended Storage life is < 1 year
- Optimal performance before 6 months
- Incompatibilities: Strong Oxidizers

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1. Control Parameters

Biological Limit Values No biological exposure limits noted

Recommended Monitoring Procedures Not available

Derived no-effect Level (DNEL) Not available

Predicted no-effect Concentrations (PNECs) Not available

8.2. Exposure Controls

Appropriate Engineering Controls Adequate ventilation should be provided.

Individual Protection Measures

General Information None available

Eye/Face Protection Goggles/face shield or Mill Safety Requirements.

Skin Protection

Hand Protection Chemical resistant gloves or Mill Safety Requirements .

Other Launder contaminated clothing before reuse.

Respiratory Protection None normally required with normal conditions.

Thermal Hazards	Not available
Hygiene Measures	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Appearance	
Physical State	Liquid
Color	Light Yellow to Light Amber
Odor	Mild Odor
Odor Threshold	Not measured
pH	3.6 (± 0.5)
Melting Point / Freezing Point	< 4°C
Initial Boiling Point and Boiling Range	Approximately 100°C
Flash Point	Not available
Evaporation Rate	Not available
Flammability (solid, gas)	Not applicable
Upper/Lower Flammability or Explosive Limits	Not available
Vapor Pressure	Not available
Relative Vapor Density (air = 1)	Not available
Relative Density	1.04 (± .05) (water = 1.00 g/cm^3 at 20 °C)
Water Solubility	Complete
Partition Coefficient (n-octanol/water)	Not available
Auto-Ignition Temperature	Not available
Decomposition Temperature	Not available
Viscosity cps (Brookfield LVF #2 / 60 rpm / 25°C)	65 (± 40)
9.2. Other Information	No relevant additional information available

SECTION 10. STABILITY AND REACTIVITY

10.1. Reactivity	The product is non-reactive under normal conditions of use and transport.
10.2. Chemical Stability	The product is stable under normal conditions.
10.3. Possibility of Hazardous Reactions	Hazardous polymerization does not occur.
10.4. Conditions to Avoid	Avoid contact with strong oxidizing agents. Avoid storage in un-agitated bulk containers. Avoid storage near extreme heat and open flame. Do not freeze.
10.5. Incompatible Materials	Strong alkalis and oxidizers
10.6. Hazardous Decomposition Products	Not available

SECTION 11. TOXICOLOGICAL INFORMATION

General Information Not available

Information on the Likely Routes of Exposure

Ingestion	Not expected to be orally toxic. May cause gastrointestinal discomfort if swallowed. In normal use, ingestion is not considered a probable route of exposure.
Inhalation	Not expected to be toxic by inhalation. However, prolonged inhalation of vapors release from hot or curing product may be irritating to the nose, throat or lungs.
Skin Contact	Not expected to be a primary skin irritant or toxic by skin contact. Possible irritation may occur from repeated long-term exposure of fully active product
Eye Contact	Not expected to be an eye irritant. However, prolonged exposure may cause mild eye irritation.

Symptoms Not available

11.1. Information on Toxicological Effects

Acute Toxicity	Based on available data, the classification criteria are not met
Skin Corrosion/ Irritation	Not Classified
Serious Eye Damage/Irritation	Not Classified. May be irritating to the eyes
Respiratory Sensitization	Not Classified
Skin Sensitization	Not Classified.
Germ Cell Mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NGP, or OSHA.
Reproductive Toxicity	Contains no ingredient listed as toxic to reproduction
Specific Target Organ Toxicity	
Single Exposure	Not classified.
Repeated Exposure	Not classified. May cause skin irritation
Aspiration Hazard	Not applicable
Other Information	Not assigned

12. ECOLOGICAL INFORMATION

12.1. Toxicity	Not expected to be harmful to aquatic organisms.
12.2. Persistence and Degradability	Not inherently biodegradable
12.3. Bioaccumulative potential	Bioaccumulation is unlikely to be significant.
Partition Coefficient n-ocanol/water (log Kow)	Not established
Bioconcentration Factor (BCF)	Not available
12.4. Mobility in Soil	Not available
12.5. Results of PBT and vPvB Assessment	Not applicable
12.6. Other Adverse Effects	No other adverse environmental effects are expected

13. DISPOSAL CONSIDERATIONS

13.1. Waste Treatment Methods

Residual Waste	Dispose of absorbed material in accordance local regulations. Avoid discharge into water courses or onto the ground. Dispose of contaminated water in a contained waste treatment system.
Contaminated Packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Offer rinsed packaging material to local recycling facilities.
EU Waste Code	Not applicable. Waste codes should be assigned by the user based on the application for which the product was used.
Disposal Methods/Information	Dispose should be in accordance with current applicable law and regulations.

14. TRANSPORT INFORMATION

General	Not regulated as dangerous goods

ADR	Not regulated as dangerous goods
RID	Not regulated as dangerous goods
ADN	Not regulated as dangerous goods
IATA	Not regulated as dangerous goods
IMDG	Not regulated as dangerous goods

15. REGULATORY INFORMATION

15.1. Safety, Health and Environmental Regulations/Legislation Specific for the Substance/Mixture

EU Regulations

Authorizations

Regulation (EC) No 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not Listed

Restrictions on Use

Regulation (EC) No 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use

Not Listed

Other Regulations This product is classified and labeled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.

15.2. Chemical Safety Assessment No Chemical Safety Assessment has been carried out.

16. OTHER INFORMATION

Special Considerations Although this product is not hazardous under normal conditions of use, continue to follow standard industrial hygiene practices and mill regulations. Chemical exposure should always be kept to a minimum.

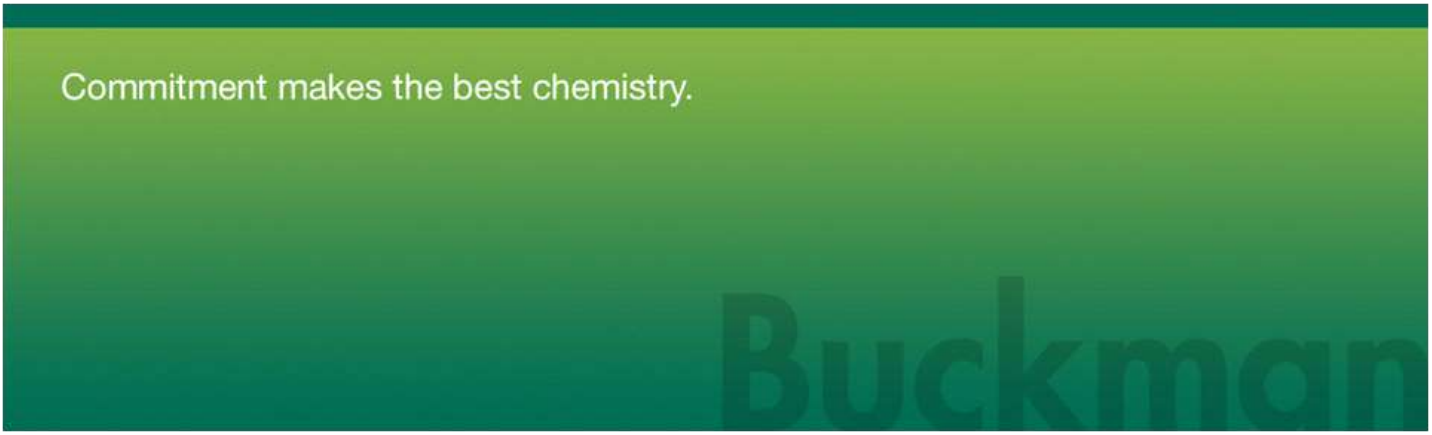
R-phrases and H-statements Under Sections 2 to 15 None

This SDS was prepared and is to be used only for this product in its present form. If this material is altered or is used as a component in another material, the information on this SDS may not be applicable. This document is generated for the purpose of distributing health, safety, and environmental data. It is not a specification sheet nor should any displayed data be construed as a specification. Some of the information presented and conclusions drawn herein are from sources other than direct test data on the product.

This information and the data herein are believed to be accurate and have been compiled from sources believed to be reliable. Buyer assumes all risk of use, storage, and handling of the product in compliance with federal, state, and local laws and regulations.

Process Applications, Ltd. will not be liable for claims relating to any party's use of or reliance on information and data contained herein regardless of whether it is claimed that the information and the data are inaccurate, incomplete, or otherwise misleading.

Busperse 2454



Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Commission Regulation (EU) 2015/830 - United Kingdom (UK)

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1 Product identifier

Product name	**Busperse 2454**
Physical state	Liquid.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Industry:	Pulp & Paper
Product use:	Precursor.

1.3 Details of the supplier of the safety data sheet

Manufacturer	**n.v. Buckman Laboratories .** Wondelgemkaai 159 9000 Gent - **BELGIUM** 0032 (0)9 257 92 11
Distributor	**Buckman Laboratories Ltd.** Lancashire Gate - 21 Tiviot Dale Stockport - Cheshire SK1 1TD - **UK** 0032 (0)9 257 92 11
e-mail address of person responsible for this SDS	sds@buckman.com

1.4 Emergency telephone number

Supplier

Telephone number	0032 (0)9 257 93 00
Hours of operation	24/7

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Not classified.

Classification according to Directive 1999/45/EC [DPD]

Not classified.

See Section 16 for the full text of the R phrases or H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms

Signal word No signal word.

Hazard statements No known significant effects or critical hazards.

Precautionary statements

General Not applicable.

Prevention Not applicable.

Response Not applicable.

Storage Not applicable.

Disposal Not applicable.

Supplemental label elements Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Special packaging requirements

Containers to be fitted with child-resistant fastenings Not applicable.

Tactile warning of danger Not applicable.

2.3 Other hazards

Other hazards which do not result in classification None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Mixture

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs or vPvBs or have been assigned a workplace exposure limit and hence require reporting in this section.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Ingestion Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Protection of first-aiders No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact No known significant effects or critical hazards.

Inhalation No known significant effects or critical hazards.

Skin contact No known significant effects or critical hazards.

Ingestion No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact No specific data.

Inhalation No specific data.

Skin contact No specific data.

Ingestion No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous combustion products Decomposition products may include the following materials:
nitrogen oxides
sulfur oxides

5.3 Advice for firefighters

SECTION 5: Firefighting measures

Special precautions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
For emergency responders	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

6.3 Methods and material for containment and cleaning up

Spill

Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures	Put on appropriate personal protective equipment (see Section 8).
Advice on general occupational hygiene	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

Recommendations	Not available.
Industrial sector specific solutions	Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Recommended monitoring procedures : Not applicable.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. Recommended: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. 1 - 4 hours (breakthrough time): Recommended: Chemical-resistant gloves. (nitrile, neoprene, polyvinyl chloride (PVC), butyl rubber)

Body protection : Wear suitable protective clothing, gloves and eye/face protection. Recommended: Wear protective helmet with brim. Wear work clothing with long sleeves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: Wear protective shoes.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	Liquid. [Colourless to pale brownish liquid]
Colour	Not available.
Odour	Not available.
Odour threshold	Not available.
pH	9.2 to 10

SECTION 9: Physical and chemical properties

Melting point/freezing point	-10°C
Initial boiling point and boiling range	98°C
Flash point	Closed cup: >93.3°C
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Burning time	Not applicable.
Burning rate	Not applicable.
Upper/lower flammability or explosive limits	Not applicable.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	Not available.
Density	1.165 to 1.185 g/cm³ [25°C (77°F)]
Solubility(ies)	Not available.
Solubility in water	Not available.
Partition coefficient: n-octanol/ water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Dynamic (room temperature): 0 to 10 mPa·s
Explosive properties	Not available.
Oxidising properties	Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity — No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability — The product is stable.

10.3 Possibility of hazardous reactions — Hazardous reactions or instability may occur under certain conditions of storage or use.

10.4 Conditions to avoid — No specific data.

10.5 Incompatible materials — No specific data.

10.6 Hazardous decomposition products — Under normal conditions of storage and use, hazardous decomposition products should not be produced. Hazardous combustion products : See Section 5.2 of the safety data sheet.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Busperse 2454	LD50 Dermal LD50 Oral	Rat Rat	>2000 mg/kg >2000 mg/kg	- -

Conclusion/Summary Not available.

Irritation/Corrosion

Skin Not irritating

Eyes Not irritating

Sensitiser

Skin Not sensitizing

Mutagenicity

Conclusion/Summary Not available.

Carcinogenicity

Conclusion/Summary Not available.

Reproductive toxicity

Conclusion/Summary Not available.

Developmental toxicity

Conclusion/Summary Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure Not available.

Potential acute health effects

Inhalation No known significant effects or critical hazards.

Ingestion No known significant effects or critical hazards.

Skin contact No known significant effects or critical hazards.

Eye contact No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation No specific data.

Ingestion No specific data.

Skin contact No specific data.

Eye contact No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Long term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

SECTION 11: Toxicological information

Potential chronic health effects

Not available.

Conclusion/Summary	Not available.
General	No known significant effects or critical hazards.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.
Other information	Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Busperse 2454	Acute EC50 >100 mg/l Acute NOEC 100 mg/l	Aquatic plants - Pseudokirchneriella subcapitata Algae - Pseudokirchneriella	72 hours -

Conclusion/Summary Not available.

12.2 Persistence and degradability

Conclusion/Summary Not available.

12.3 Bioaccumulative potential

Not available.

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC})	Not available.
Mobility	Not available.

12.5 Results of PBT and vPvB assessment

PBT	Not applicable.
vPvB	Not applicable.

12.6 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal	The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.
Hazardous waste	Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 2008/98/EC.

Packaging

SECTION 13: Disposal considerations

Methods of disposal	The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.
Special precautions	This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

This preparation is not classified as dangerous according to international transport regulations (ADR/RID, IMDG or ICAO/IATA).

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Other EU regulations

Biocidal products regulation

Uses	Dose
PT 11: Preservatives for liquid-cooling and processing systems PT 12: Slimicides.	Contact your local Buckman representative for applicable dosage.

Physical state Liquid. [Colourless to pale brownish liquid]

Avoid exposure. After accidental exposure, seek immediate medical attention. Do not induce vomiting.

Product waste and emptied containers should be disposed of in accordance with local waste regulations. Do not reuse container.

Do not allow to enter drains or watercourses.

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

15.2 Chemical safety assessment Not applicable.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms

ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Not classified.	

Full text of abbreviated H statements Not applicable.

Full text of classifications [CLP/GHS] Not applicable.

Full text of abbreviated R phrases Not applicable.

Full text of classifications [DSD/DPD] Not applicable.

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Version 2.01

This version supersedes any version issued before this date.

Notice to reader

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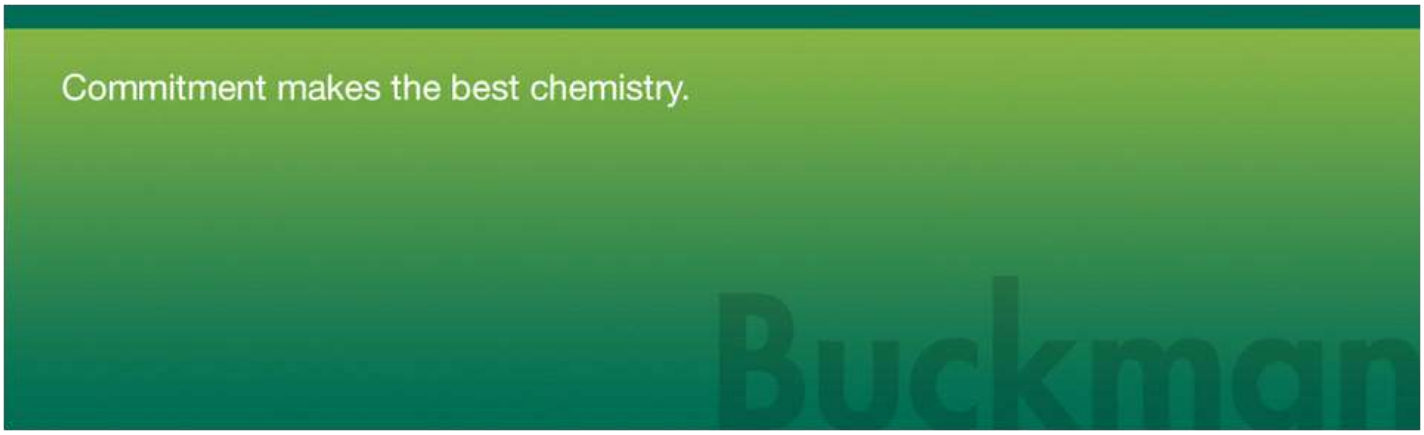
Buckman
EUROPE
MIDDLE EAST
N.AFRICA

Busperse 2454



REGULATORY FACT SHEET

Food Contact

FDA - US Food And Drug Administration. CFR - Code of Federal Regulations Title 21 (version April 2015):

The product is compliant with the following chapters:

§ 173.310 - Boiler water additives.
§ 175.105 - Adhesives.
§ 176.170 - Components of paper and paperboard in contact with aqueous and fatty foods.

BfR Recommendations on Food Contact Materials (Version July 2015):

The product is compliant with the following chapters:

XXXVI: Paper and board for food contact.

Ecolabel

Nordic Swan

The product is compliant with Nordic Ecolabelling of Paper Products - Chemical Module Version 2.3
The product is compliant with Nordic Ecolabelling of Tissue Paper Version 5.4
The product has been registered on My Swan Account, the online database of Nordic Ecolabelling.

EU - Flower

The product is compliant with EU flower ecolabel for tissue paper (2009/568/EU)
The product is compliant with EU flower ecolabel for copying and graphic paper (2011/332/EU)
The product is compliant with EU flower ecolabel for printed paper (2012/481/EU)

Blaue Engel

The product is compliant with RAL-UZ 5: Sanitary Paper Products Edition July 2014
The product is compliant with RAL-UZ 14: Recycled Paper Edition July 2014
The product is compliant with RAL-UZ 56: Recycled Cardboard Edition July 2014
The product is compliant with RAL-UZ 72: Printing and Publication Papers primarily made of waste paper Edition July 2014

Biocide Regulations

This biocide is in compliance with the European Biocidal Product Regulation (BPR 528/2012/EU).
For relevant national biocide approvals, please, check section 15 of the relevant national SDS.

REACH

This product and all of its ingredient are compliant with REACH.
The Buckman's REACH position paper and SVHC statement can be obtained on demand.

Kosher and Kosher for Passover

This product is Kosher certified.

This product is Kosher for Passover certified.

MATERIALS OF CONSTRUCTION

Compatible materials

This product is compatible with the following materials:

Polyethylene
Polypropylene
Teflon
304 Stainless steel
316 Stainless steel

Incompatible materials

This product is incompatible with the following materials:

Copper
Aluminium 5052
Polyester (Atlac 382)
Zinc

Contact Details

For Regulatory content questions, please contact the Regulatory Affairs team on the e-mail address sds@buckman.com

For questions about the materials of construction, please contact the Field Equipment Team EMEA on the e-mail address FieldEquipmentDep_EMEA@buckman.com.

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Validated by	Regulatory Affairs Team and Field Equipment Team of Buckman EMEA.

This document can be considered as an official statement
This version supersedes any version issued before this date.

Notice to reader

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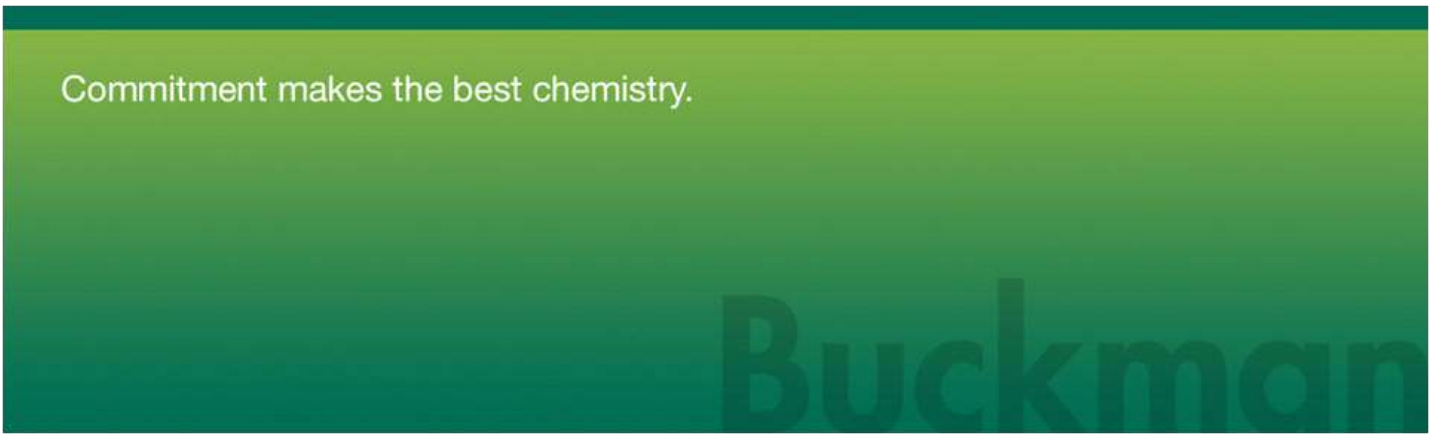
No warranty with regard to the properties of the material is hereby expressed or implied. Final determination of suitability for purpose of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Bufloc 5563



Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Commission Regulation (EU) 2015/830 - United Kingdom (UK)

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1 Product identifier

Product name	**Bufloc 5563**
Physical state	Liquid.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Industry:	Pulp & Paper
Product use:	Coagulant

1.3 Details of the supplier of the safety data sheet

Manufacturer	**n.v. Buckman Laboratories .** Wondelgemkaai 159 9000 Gent - **BELGIUM** 0032 (0)9 257 92 11
Distributor	**Buckman Laboratories Ltd.** Lancashire Gate - 21 Tiviot Dale Stockport - Cheshire SK1 1TD - **UK** 0032 (0)9 257 92 11
e-mail address of person responsible for this SDS	sds@buckman.com

1.4 Emergency telephone number

Supplier

Telephone number	0032 (0)9 257 93 00
Hours of operation	24/7

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Eye Irrit. 2, H319
Aquatic Chronic 3, H412

Classification according to Directive 1999/45/EC [DPD]

R52/53

See Section 16 for the full text of the R phrases or H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms

Signal word Warning

Hazard statements H319 - Causes serious eye irritation.
H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements

General Not applicable.

Prevention P280 - Wear eye or face protection: Recommended: safety glasses with side-shields.
.
P273 - Avoid release to the environment.
P264 - Wash hands thoroughly after handling.

Response P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage Not applicable.

Disposal P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Special packaging requirements

Containers to be fitted with child-resistant fastenings Not applicable.

Tactile warning of danger Not applicable.

2.3 Other hazards

Other hazards which do not result in classification None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Mixture

Product/ingredient name	Identifiers	%	Classification		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
1,2-Ethanediamine, polymer with 2-(chloromethyl)oxirane and N-methylmethanamine	CAS: 42751-79-1	≥50 - ≤75	R52/53 **See Section 16 for the full text of the R-phrases declared above.**	Eye Irrit. 2, H319 Aquatic Chronic 3, H412 **See Section 16 for the full text of the H statements declared above.**	[1]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs or vPvBs or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard
[2] Substance with a workplace exposure limit
[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
[5] Substance of equivalent concern

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention.

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion

Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders

No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

SECTION 4: First aid measures

Potential acute health effects

Eye contact	Causes serious eye irritation.
Inhalation	No known significant effects or critical hazards.
Skin contact	No known significant effects or critical hazards.
Ingestion	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	No specific data.
Skin contact	No specific data.
Ingestion	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Specific treatments	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous combustion products	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides halogenated compounds

5.3 Advice for firefighters

Special precautions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders

If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and material for containment and cleaning up

Spill

Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

Recommendations

Not available.

Industrial sector specific solutions

Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Recommended monitoring procedures : Not applicable.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles. Recommended: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. 1 - 4 hours (breakthrough time): Recommended: Chemical-resistant gloves. (nitrile, neoprene, polyvinyl chloride (PVC), butyl rubber)

Body protection : Wear suitable protective clothing, gloves and eye/face protection. Recommended: Wear protective helmet with brim. Wear work clothing with long sleeves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: Wear protective shoes.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	Liquid.
Colour	Clear, colourless to pale yellow liquid
Odour	Amine-like.
Odour threshold	Not available.
pH	4 to 6
Melting point/freezing point	-18°C
Initial boiling point and boiling range	100°C
Flash point	Closed cup: >150°C
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Burning time	Not applicable.
Burning rate	Not applicable.
Upper/lower flammability or explosive limits	Not applicable.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	Not available.
Density	Not available.
Solubility(ies)	Not available.
Solubility in water	Not available.
Partition coefficient: n-octanol/ water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Dynamic (room temperature): 650 to 1000 mPa·s
Explosive properties	Not available.
Oxidising properties	Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity — No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability — The product is stable.

10.3 Possibility of hazardous reactions — Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid — No specific data.

10.5 Incompatible materials — No specific data.

10.6 Hazardous decomposition products — Under normal conditions of storage and use, hazardous decomposition products should not be produced. Hazardous combustion products : See Section 5.2 of the safety data sheet.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Bufloc 5563	LC50 Inhalation Vapour	Rat	>20 mg/l Based on similar product.	4 hours
	LD50 Dermal	Rabbit	>2000 mg/kg Based on similar product.	-
	LD50 Oral	Rat	>5000 mg/kg Based on similar product.	-

Conclusion/Summary Not available.

Irritation/Corrosion

Conclusion/Summary Not available.

Sensitiser

Conclusion/Summary Not available.

Mutagenicity

Conclusion/Summary Not available.

Carcinogenicity

Conclusion/Summary Not available.

Reproductive toxicity

Conclusion/Summary Not available.

Developmental toxicity

Conclusion/Summary Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure Not available.

Potential acute health effects

Inhalation No known significant effects or critical hazards.

Ingestion No known significant effects or critical hazards.

Skin contact No known significant effects or critical hazards.

Eye contact Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation No specific data.

Ingestion No specific data.

Skin contact No specific data.

Eye contact Adverse symptoms may include the following:
pain or irritation
watering
redness

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

SECTION 11: Toxicological information

Potential immediate effects Not available.

Potential delayed effects Not available.

Long term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Potential chronic health effects

Not available.

Conclusion/Summary Not available.

General No known significant effects or critical hazards.

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity No known significant effects or critical hazards.

Teratogenicity No known significant effects or critical hazards.

Developmental effects No known significant effects or critical hazards.

Fertility effects No known significant effects or critical hazards.

Other information Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Bufloc 5563	Acute EC50 10 to 100 mg/l Based on similar product. Acute IC50 10 to 100 mg/l Based on similar product. Acute LC50 10 to 100 mg/l Based on similar product. Fresh water	Daphnia - Daphnia magna Algae - Selenastrum capricornutum Fish - Brachydanio rerio	48 hours 72 hours 96 hours

Conclusion/Summary Not available.

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Bufloc 5563	OECD 301B	<70 % - Not readily - 28 days	-	-

Conclusion/Summary Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Bufloc 5563	-	-	Not readily

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Bufloc 5563	-	0	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC}) Not available.

Mobility Not available.

12.5 Results of PBT and vPvB assessment

PBT Not applicable.

SECTION 12: Ecological information

vPvB Not applicable.

12.6 Other adverse effects No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste The classification of the product may meet the criteria for a hazardous waste.

Packaging

Methods of disposal The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

This preparation is not classified as dangerous according to international transport regulations (ADR/RID, IMDG or ICAO/IATA).

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Other EU regulations

Biocidal products regulation

Not applicable.

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

15.2 Chemical safety assessment Not applicable.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms

ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Eye Irrit. 2, H319	Calculation method
Aquatic Chronic 3, H412	Calculation method

Full text of abbreviated H statements	H319	Causes serious eye irritation.
	H412	Harmful to aquatic life with long lasting effects.
Full text of classifications [CLP/GHS]	Aquatic Chronic 3, H412	LONG-TERM AQUATIC HAZARD - Category 3
	Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2

Full text of abbreviated R phrases: R52/53- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Full text of classifications [DSD/DPD]: Not applicable.

Date of printing: 12/05/2016

Date of issue/ Date of revision: 10/05/2016

Date of previous issue: 28/01/2016

Version: 3

This version supersedes any version issued before this date.

Notice to reader

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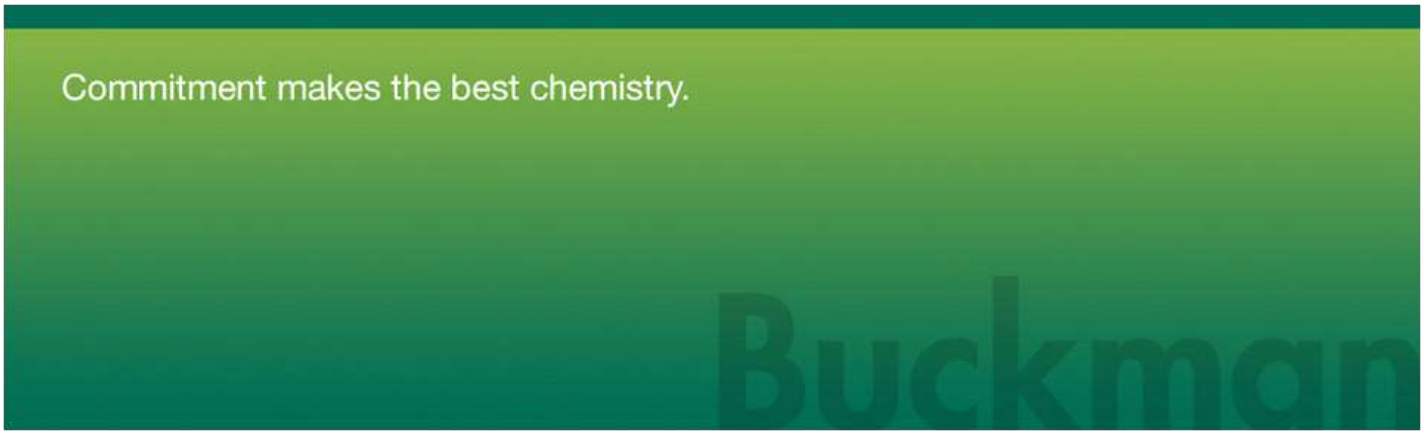
No warranty with regard to the properties of the material is hereby expressed or implied. Final determination of suitability for purpose of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Buckman
EUROPE
MIDDLE EAST
N.AFRICA

Bufloc 5563



REGULATORY FACT SHEET

Food Contact

FDA - US Food And Drug Administration. CFR - Code of Federal Regulations Title 21 (version April 2015):

The product is compliant with the following chapters:

§ 173.60 - Dimethylamine-epichlorohydrin copolymer.
§ 176.170 - Components of paper and paperboard in contact with aqueous and fatty foods.
§ 176.180 - Components of paper and paperboard in contact with dry food.

Limitations:

As a retention aid employed before the sheet-forming operation in the manufacture of paper and paperboard and limited to use at a level not to exceed 1 percent by weight of the finished paper and paperboard.
At the size press at a level not to exceed 1 percent by weight of the finished paper and paperboard.

BfR Recommendations on Food Contact Materials (Version July 2015):

The product is compliant with the following chapters:

XXXVI: Paper and board for food contact.
XXXVI/2: Paper and Paperboard for Baking Purposes.

Limitations:

Maximum 0.3%

Ecolabel

Nordic Swan

The product has been registered on My Swan Account, the online database of Nordic Ecolabelling.
The product is compliant with Nordic Ecolabelling of Paper Products - Chemical Module Version 2.3
The product is compliant with Nordic Ecolabelling of Tissue Paper Version 5.4

EU - Flower

The product is compliant with EU flower ecolabel for tissue paper (2009/568/EU)
The product is compliant with EU flower ecolabel for printed paper (2012/481/EU)
The product is compliant with EU flower ecolabel for copying and graphic paper (2011/332/EU)

Blaue Engel

The product is compliant with RAL-UZ 5: Sanitary Paper Products Edition July 2014
The product is compliant with RAL-UZ 14: Recycled Paper Edition July 2014
The product is compliant with RAL-UZ 56: Recycled Cardboard Edition July 2014
The product is compliant with RAL-UZ 72: Printing and Publication Papers primarily made of waste paper Edition July 2014

REACH

This product and all of its ingredient are compliant with REACH.
The Buckman's REACH position paper and SVHC statement can be obtained on demand.

MATERIALS OF CONSTRUCTION

Compatible materials

This product is compatible with the following materials:

304 Stainless steel
316 Stainless steel
Teflon
Polyethylene
Polypropylene
Viton

Incompatible materials

This product is incompatible with the following materials:

Copper
Iron
Aluminium 5052

Contact Details

For Regulatory content questions, please contact the Regulatory Affairs team on the e-mail address sds@buckman.com

For questions about the materials of construction, please contact the Field Equipment Team EMEA on the e-mail address FieldEquipmentDep_EMEA@buckman.com.

Date of printing	12/05/2016
Date of issue/ Date of revision	10/05/2016
Version	3
Validated by	Regulatory Affairs Team and Field Equipment Team of Buckman EMEA.

This document can be considered as an official statement
This version supersedes any version issued before this date.

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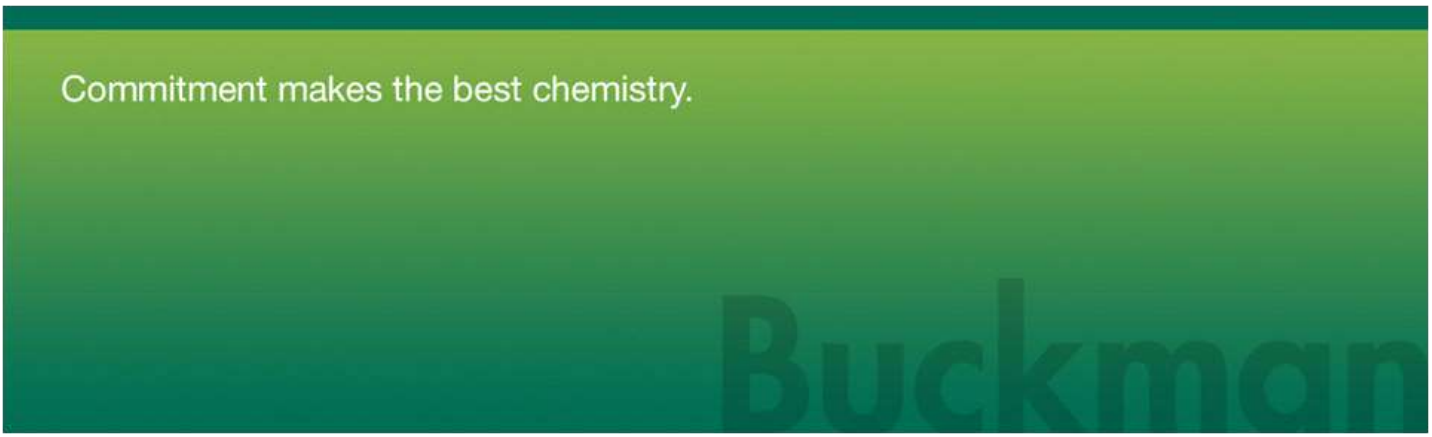
BUFLOC 5290



Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Commission Regulation (EU) 2015/830 - United Kingdom (UK)

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1 Product identifier

Product name	**BUFLOC 5290**
Physical state	Solid.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Industry:	Pulp & Paper
Product use:	Flocculant

1.3 Details of the supplier of the safety data sheet

Manufacturer	**n.v. Buckman Laboratories .** Wondelgemkaai 159 9000 Gent - **BELGIUM** 0032 (0)9 257 92 11
Distributor	**Buckman Laboratories Ltd.** Lancashire Gate - 21 Tiviot Dale Stockport - Cheshire SK1 1TD - **UK** 0032 (0)9 257 92 11
e-mail address of person responsible for this SDS	sds@buckman.com

1.4 Emergency telephone number

Supplier

Telephone number	0032 (0)9 257 93 00
Hours of operation	24/7

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Not classified.

Classification according to Directive 1999/45/EC [DPD]

Not classified.

See Section 16 for the full text of the R phrases or H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms

Signal word No signal word.

Hazard statements No known significant effects or critical hazards.

Precautionary statements

General Not applicable.

Prevention Not applicable.

Response Not applicable.

Storage Not applicable.

Disposal Not applicable.

Supplemental label elements Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Special packaging requirements

Containers to be fitted with child-resistant fastenings Not applicable.

Tactile warning of danger Not applicable.

2.3 Other hazards

Other hazards which do not result in classification None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Mixture

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs or vPvBs or have been assigned a workplace exposure limit and hence require reporting in this section.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Ingestion Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Protection of first-aiders No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact No known significant effects or critical hazards.

Inhalation No known significant effects or critical hazards.

Skin contact No known significant effects or critical hazards.

Ingestion No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact No specific data.

Inhalation No specific data.

Skin contact No specific data.

Ingestion No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture No specific fire or explosion hazard.

Hazardous combustion products Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides

5.3 Advice for firefighters

SECTION 5: Firefighting measures

Special precautions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
For emergency responders	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

6.3 Methods and material for containment and cleaning up

Spill

Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures	Put on appropriate personal protective equipment (see Section 8).
Advice on general occupational hygiene	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store between the following temperatures: -40 to 50°C (-40 to 122°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

Recommendations	Not available.
Industrial sector specific solutions	Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Recommended monitoring procedures : Not applicable.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. Recommended: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. 1 - 4 hours (breakthrough time): Recommended: Chemical-resistant gloves. (nitrile, neoprene, polyvinyl chloride (PVC), butyl rubber)

Body protection : Wear suitable protective clothing, gloves and eye/face protection. Recommended: Wear protective helmet with brim. Wear work clothing with long sleeves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: Wear protective shoes.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	Solid. [Granular solid.]
Colour	White.
Odour	Not available.
Odour threshold	Not available.
pH	4 to 9 [Conc. (% w/w): 0.5%]

SECTION 9: Physical and chemical properties

Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Closed cup: Not applicable.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Burning time	Not available.
Burning rate	Not available.
Upper/lower flammability or explosive limits	Not applicable.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	Not available.
Density	0.78 to 0.82 g/cm³ [25°C (77°F)]
Solubility(ies)	Not available.
Solubility in water	Not available.
Partition coefficient: n-octanol/ water	0
Auto-ignition temperature	>150°C
Decomposition temperature	>150°C
Viscosity	Dynamic (room temperature): 5.7 to 7 mPa·s
Explosive properties	Not available.
Oxidising properties	Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity — No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability — The product is stable.

10.3 Possibility of hazardous reactions — Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid — No specific data.

10.5 Incompatible materials — No specific data.

10.6 Hazardous decomposition products — Under normal conditions of storage and use, hazardous decomposition products should not be produced. Hazardous combustion products : See Section 5.2 of the safety data sheet.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
BUFLOC 5290	LD50 Dermal LD50 Oral	Rabbit Rat	>2000 mg/kg >5000 mg/kg	- -

Conclusion/Summary Not available.

Irritation/Corrosion

Skin Not irritating

Eyes Not irritating

Sensitiser

Skin Not sensitizing

Mutagenicity

Conclusion/Summary Not available.

Carcinogenicity

Conclusion/Summary Not available.

Reproductive toxicity

Conclusion/Summary Not available.

Developmental toxicity

Conclusion/Summary Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure Not available.

Potential acute health effects

Inhalation No known significant effects or critical hazards.

Ingestion No known significant effects or critical hazards.

Skin contact No known significant effects or critical hazards.

Eye contact No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation No specific data.

Ingestion No specific data.

Skin contact No specific data.

Eye contact No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Long term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

SECTION 11: Toxicological information

Potential chronic health effects

Not available.

Conclusion/Summary	Not available.
General	No known significant effects or critical hazards.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.
Other information	Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
BUFLOC 5290	Acute EC50 >100 mg/l Acute IC50 >100 mg/l Acute LC50 >100 mg/l	Daphnia - Daphnia Magna Algae - Scenedesmus subspicatus Fish - Danio Rerio	48 hours 72 hours 96 hours

Conclusion/Summary Not available.

12.2 Persistence and degradability

Conclusion/Summary Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
BUFLOC 5290	-	-	Not readily

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
BUFLOC 5290	0	-	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC}) Not available.

Mobility Not available.

12.5 Results of PBT and vPvB assessment

PBT Not applicable.

vPvB Not applicable.

12.6 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

SECTION 13: Disposal considerations

Methods of disposal

The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste

Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 2008/98/EC.

Packaging

Methods of disposal

The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions

This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

This preparation is not classified as dangerous according to international transport regulations (ADR/RID, IMDG or ICAO/IATA).

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15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Other EU regulations

Biocidal products regulation

Not applicable.

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

15.2 Chemical safety assessment

Not applicable.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms

ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
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RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Not classified.	

Full text of abbreviated H statements Not applicable.

Full text of classifications [CLP/GHS] Not applicable.

Full text of abbreviated R phrases Not applicable.

Full text of classifications [DSD/DPD] Not applicable.

Date of printing 12/05/2016

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Date of previous issue 10/11/2015

Version 3

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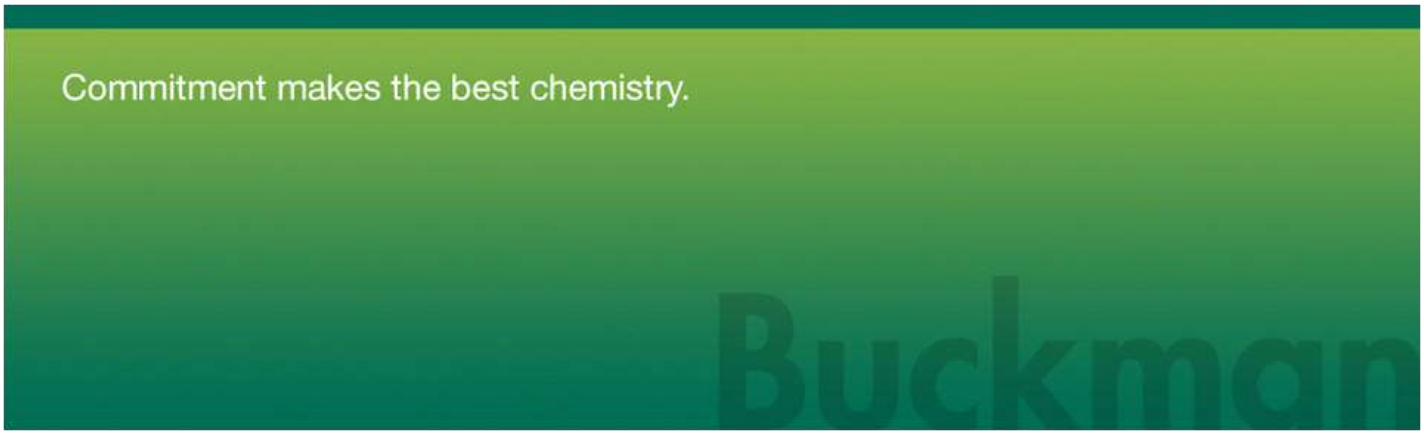
Buckman
EUROPE
MIDDLE EAST
N.AFRICA

BUFLOC 5290



REGULATORY FACT SHEET

Food Contact

FDA - US Food And Drug Administration. CFR - Code of Federal Regulations Title 21 (version April 2015):

The product is compliant with the following chapters:

§ 173.310 - Boiler water additives.
§ 173.315 - Chemicals used in washing or to assist in the peeling of fruits and vegetables.
§ 173.5 - Acrylate-acrylamide resins.
§ 175.105 - Adhesives.
§ 176.110 - Acrylamide-acrylic acid resins.
§ 176.170 - Components of paper and paperboard in contact with aqueous and fatty foods.

BfR Recommendations on Food Contact Materials (Version July 2015):

The product is compliant with the following chapters:

XXXVI: Paper and board for food contact.
XXXVI/1: Cooking Papers, Hot Filter Papers and Filter Layers.
XXXVI/2: Paper and Paperboard for Baking Purposes.

Ecolabel

Nordic Swan

Not compliant

REACH

This product and all of its ingredient are compliant with REACH.
The Buckman's REACH position paper and SVHC statement can be obtained on demand.

Contact Details

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For questions about the materials of construction, please contact the Field Equipment Team EMEA on the e-mail address FieldEquipmentDep_EMEA@buckman.com.

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This version supersedes any version issued before this date.

Notice to reader

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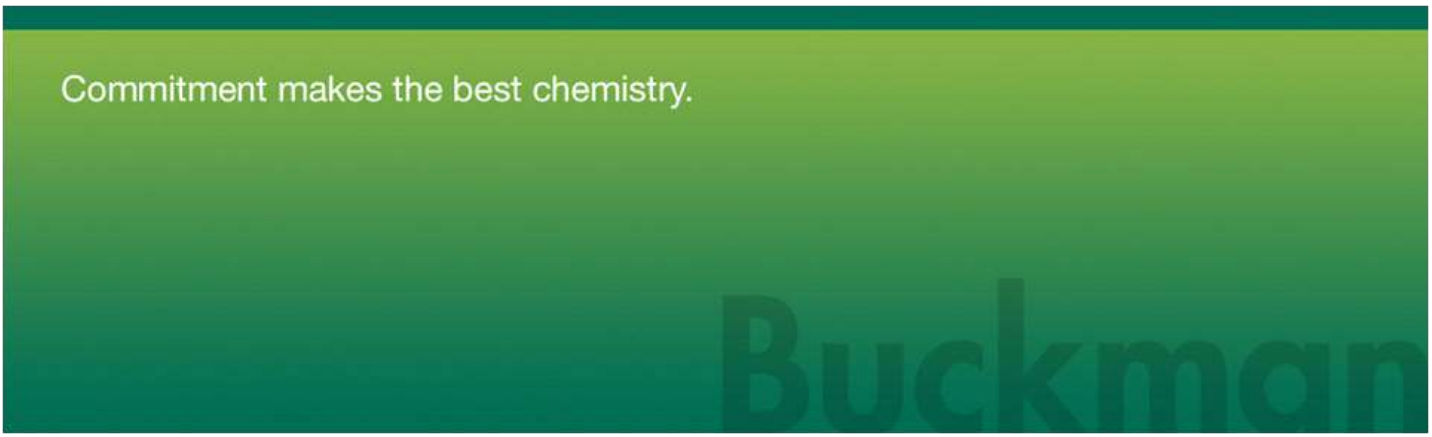
BUBREAK 4243



Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Commission Regulation (EU) 2015/830 - United Kingdom (UK)

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1 Product identifier

Product name	**BUBREAK 4243**
Physical state	Liquid.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Industry:	Paper
Product use:	Defoamer

1.3 Details of the supplier of the safety data sheet

Manufacturer	**n.v. Buckman Laboratories .** Wondelgemkaai 159 9000 Gent - **BELGIUM** 0032 (0)9 257 92 11
Distributor	**Buckman Laboratories Ltd.** Lancashire Gate - 21 Tiviot Dale Stockport - Cheshire SK1 1TD - **UK** 0032 (0)9 257 92 11
e-mail address of person responsible for this SDS	sds@buckman.com

1.4 Emergency telephone number

Supplier

Telephone number	0032 (0)9 257 93 00
Hours of operation	24/7

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Not classified.

Classification according to Directive 1999/45/EC [DPD]

Not classified.

See Section 16 for the full text of the R phrases or H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms

Signal word No signal word.

Hazard statements No known significant effects or critical hazards.

Precautionary statements

General Not applicable.

Prevention Not applicable.

Response Not applicable.

Storage Not applicable.

Disposal Not applicable.

Supplemental label elements Contains reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1). May produce an allergic reaction. Safety data sheet available on request.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Special packaging requirements

Containers to be fitted with child-resistant fastenings Not applicable.

Tactile warning of danger Not applicable.

2.3 Other hazards

Other hazards which do not result in classification None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Mixture

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs or vPvBs or have been assigned a workplace exposure limit and hence require reporting in this section.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin contact Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Ingestion Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Protection of first-aiders No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact No known significant effects or critical hazards.

Inhalation No known significant effects or critical hazards.

Skin contact No known significant effects or critical hazards.

Ingestion No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact No specific data.

Inhalation No specific data.

Skin contact No specific data.

Ingestion No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous combustion products No specific data.

5.3 Advice for firefighters

Special precautions for fire-fighters Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

SECTION 5: Firefighting measures

Special protective equipment for fire-fighters

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.

For emergency responders

If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

6.3 Methods and material for containment and cleaning up

Spill

Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

Recommendations

Not available.

Industrial sector specific solutions

Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Recommended monitoring procedures : Not applicable.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. Recommended: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. 1 - 4 hours (breakthrough time): Recommended: Chemical-resistant gloves. (nitrile, neoprene, polyvinyl chloride (PVC), butyl rubber)

Body protection : Wear suitable protective clothing, gloves and eye/face protection. Recommended: Wear protective helmet with brim. Wear work clothing with long sleeves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: Wear protective shoes.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	Liquid. [emulsion]
Colour	Milky white
Odour	Not available.
Odour threshold	Not available.
pH	7 to 10

SECTION 9: Physical and chemical properties

Melting point/freezing point	0°C
Initial boiling point and boiling range	100°C
Flash point	Closed cup: >100°C
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Burning time	Not applicable.
Burning rate	Not applicable.
Upper/lower flammability or explosive limits	Not applicable.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	Not available.
Density	0.945 to 0.975 g/cm³ [25°C (77°F)]
Solubility(ies)	Not available.
Solubility in water	Not available.
Partition coefficient: n-octanol/ water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Dynamic (room temperature): 150 to 450 mPa·s
Explosive properties	Not available.
Oxidising properties	Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity — No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability — The product is stable.

10.3 Possibility of hazardous reactions — Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid — No specific data.

10.5 Incompatible materials — No specific data.

10.6 Hazardous decomposition products — Under normal conditions of storage and use, hazardous decomposition products should not be produced. Hazardous combustion products : See Section 5.2 of the safety data sheet.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
BUBREAK 4243	LD50 Dermal	Rat	>2000 mg/kg	-

Conclusion/Summary Not available.

Irritation/Corrosion

Conclusion/Summary Not available.

Sensitiser

Conclusion/Summary Not available.

Mutagenicity

Conclusion/Summary Not available.

Carcinogenicity

Conclusion/Summary Not available.

Reproductive toxicity

Conclusion/Summary Not available.

Developmental toxicity

Conclusion/Summary Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure Not available.

Potential acute health effects

Inhalation No known significant effects or critical hazards.

Ingestion No known significant effects or critical hazards.

Skin contact No known significant effects or critical hazards.

Eye contact No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation No specific data.

Ingestion No specific data.

Skin contact No specific data.

Eye contact No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Long term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Potential chronic health effects

Not available.

SECTION 11: Toxicological information

Conclusion/Summary	Not available.
General	No known significant effects or critical hazards.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.
Other information	Not available.

SECTION 12: Ecological information

12.1 Toxicity

Conclusion/Summary Not available.

12.2 Persistence and degradability

Conclusion/Summary Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
BUBREAK 4243	-	-	Readily

12.3 Bioaccumulative potential

Not available.

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC})	Not available.
Mobility	Not available.

12.5 Results of PBT and vPvB assessment

PBT	Not applicable.
vPvB	Not applicable.

12.6 Other adverse effects No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 2008/98/EC.

Packaging

Methods of disposal The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

SECTION 13: Disposal considerations

Special precautions This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

This preparation is not classified as dangerous according to international transport regulations (ADR/RID, IMDG or ICAO/IATA).

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Other EU regulations

Biocidal products regulation

Not applicable.

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

15.2 Chemical safety assessment Not applicable.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms

ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Not classified.	

Full text of abbreviated H statements Not applicable.

Full text of classifications [CLP/GHS] Not applicable.

SECTION 16: Other information

Full text of abbreviated R phrases	Not applicable.
Full text of classifications [DSD/DPD]	Not applicable.
Date of printing	8/06/2016
Date of issue/ Date of revision	8/06/2016
Date of previous issue	8/06/2016
Version	6.01

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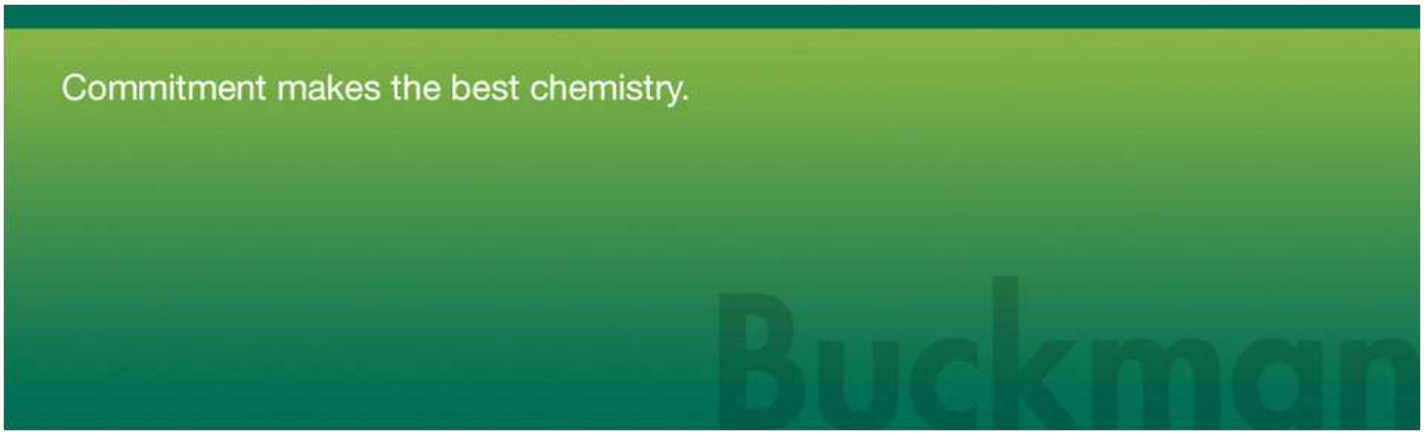
Buckman
EUROPE
MIDDLE EAST
N.AFRICA

BUBREAK 4243



REGULATORY FACT SHEET

Food Contact

FDA - US Food And Drug Administration. CFR - Code of Federal Regulations Title 21 (version April 2015):

The product is compliant with the following chapters:

§ 176.170 - Components of paper and paperboard in contact with aqueous and fatty foods.
§ 176.180 - Components of paper and paperboard in contact with dry food.

Limitations:

The use of this product cannot exceed the amounts reasonably required to accomplish the intended technical effect.

BfR Recommendations on Food Contact Materials (Version July 2015):

The product is compliant with the following chapters:

XXXVI: Paper and board for food contact.
XXXVI/2: Paper and Paperboard for Baking Purposes.

Limitations:

max. 0.4 %, based on dry fibres weight

Ecolabel

Nordic Swan

The product has been registered on My Swan Account, the online database of Nordic Ecolabelling.
The product is compliant with Nordic Ecolabelling of Paper Products - Chemical Module Version 2.3

EU - Flower

The product is compliant with EU flower ecolabel for tissue paper (2009/568/EU)

REACH

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Commission Regulation (EU) 2015/830 - United Kingdom (UK)

Product name:

BUBREAK 4243

This product and all of its ingredient are compliant with REACH.
The Buckman's REACH position paper and SVHC statement can be obtained on demand.

Contact Details

For Regulatory content questions, please contact the Regulatory Affairs team on the e-mail address sds@buckman.com

For questions about the materials of construction, please contact the Field Equipment Team EMEA on the e-mail address FieldEquipmentDep_EMEA@buckman.com.

Date of printing	8/06/2016
Date of issue/ Date of revision	8/06/2016
Version	6.01
Validated by	Regulatory Affairs Team and Field Equipment Team of Buckman EMEA.

This document can be considered as an official statement
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SECTION 1. IDENTIFICATION OF SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1. Product Identifier

Name of Product PALMOD Y MC

Synonyms None

Issue Date 07 DEC 2017

Version Number 01

1.2. Relevant Identified uses of the substance or mixture and uses advised against

Identified Uses Industrial

Uses Advised Against None known

1.3. Details of the supplier of the safety data sheet

Company

Process Applications Ltd.
1126 Taylorsville Rd
Washington Crossing, PA 18977
USA

Contact

phone: +1 215 493 9361
Fax: +1 215 321 7152
Email: info@palpaperchem.com

Emergency Phone Number +1 215 493 9361

SECTION 2. HAZARDS IDENTIFICATION

2.1. Classification

Skin Irritation	Category 2
Eye Irritation	Category 2A

Label Elements

Hazard Symbol

Signal Word WARNING!

Health

Causes skin irritation.
Causes serious eye irritation

Precautionary Statements

Wash skin thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.

Response Statements IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention
IF ON SKIN: Wash with plenty of water/ soap.

Disposal Dispose of contents/container in accordance with local/regional/national regulations.

SECTION 3. COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical Description Solution of quaternized reaction compounds and cationic/nonionic surfactants

Hazardous Components	CAS Number	EINECS	Concentration (%)

Impurities which Contribute to the Classification of the Substance
There are no impurities which contribute to the classification of the substance.

SECTION 4. FIRST-AID MEASURES

General Information Contact physician if discomfort continues

4.1. Description of first aid measures

Inhalation Remove to fresh air. Rest in half-upright position. Seek medical attention if necessary.

Skin Contact Wash exposed area with soap and water for at least 15 minutes. If irritation occurs, see a physician. Remove contaminated clothing and launder before re-use.

Eye Contact Immediately flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Get medical attention if irritation continues. Do not use chemical antidote.

Ingestion If conscious, immediately rinse mouth and drink two large glasses of water. Seek medical attention. Never give anything by mouth to an unconscious person.

4.2. Most Important Symptoms and Effects both Acute and Delayed

Irritation of the eyes and skin

4.3. Indication of any Immediate Medical Attention and Special Treatment Needed

Treat symptomatically

General Information Contact physician if discomfort continues

SECTION 5. FIRE-FIGHTING MEASURES

General Fire Hazards Formation of oxides of carbon, nitrogen oxides and sulfur compounds.
In case of combustion it may generate carbon monoxide, besides CO_2.

5.1. Extinguishing Media

Suitable Extinguishing Media Dry chemical, water fog, regular foam.

Unsuitable Extinguishing Media No data available.

5.2. Special Hazards arising from the substance or mixture

Un-vented containers can build up pressure if exposed to heat (fire) and rupture violently.

5.3. Advice for Firefighters

Special Protective Equipment for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, (MSHA/NIOSH approved or equivalent) and full protective gear.

Water or foam may cause frothing which can be violent, especially if sprayed into containers of hot, burning liquid.

Special Fire Fighting Procedures

Cool containers exposed to flames with water until well after fire is out. Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Use pressurized air mask if the product is involved in a fire.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

Non-Emergency Personnel

Isolate and signalize area.
Keep heat and/or ignition sources away.
Use personal protection equipment as indicated in Section 8, in order to avoid contact with spilled product.

Emergency Responders Keep unnecessary personnel away. Use personal protection recommended in Section 8 or the SDS

6.2. Environmental Precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering into soil and waterways.
Notify the competent authorities if the product has run into drainage systems or watercourse or has contaminate the ground or vegetation.

6.3. Methods and Materials for Containment and Cleaning up

Stop if possible
Contain and dike spilled product with earth or sand.
Eliminate ignition or heat sources.
Transfer to proper container.
Collect remnants with an appropriate absorbent material.
Wash the contaminated surface with water, which should be collected for disposal.

Never return spills in the original container for re-use.

6.4.. Reference to Other Sections

Personal protection see section 8. Waste disposal see section 13.

SECTION 7. HANDLING AND STORAGE

7.1.Precautions for Safe Handling

- Use in a well-ventilated area.
- Avoid inhalation and contact with eyes, skin or clothing through proper protection.
- Wash thoroughly after handling and remove contaminated clothing promptly. Wash clothing before re-use
- Emergency eyewashes and showers shall be located in accessible locations.
- Unvented Containers may develop pressure. Open with caution.

7.2. Conditions for Safe Storage

- Keep away from heat, sparks and open flame
- Store in a covered and well-ventilated area, away from sunlight.
- For maximum storage life, store at temperatures below 77°F (25°C).

- Do not freeze.
- Eyewash stations and safety showers should be easily accessible.
- Keep containers closed when not in use
- Recommended Storage life is < 1 year
- Optimal performance before 6 months
- Incompatibilities: Strong Oxidizing Agents

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1. Control Parameters

Biological Limit Values	None Noted
Recommended Monitoring Procedures	Not available
Derived no-effect Level (DNEL)	Not available
Predicted no-effect Concentrations (PNECs)	Not available

8.2. Exposure Controls

Appropriate Engineering Controls Adequate ventilation should be provided.

Individual Protection Measures

General Information	None available
Eye/Face Protection	Chemical splash proof goggles/face shield
Skin Protection	
Hand Protection	Protective gloves such as: Neoprene or Buna-N.
Other	PVC apron, Safety boots/shoes. Launder contaminated clothing before reuse.
Respiratory Protection	None normally required with normal conditions. In case of emergency or contact with high concentrations of the product, wear an air supplied mask or self contained breathing apparatus. It is recommended to wear face mask with organic vapors cartridge in case of exposure to vapors/aerosols.
Thermal Hazards	Not available

Hygiene Measures	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Appearance	
Physical State	Liquid
Color	Clear Golden to Reddish Amber.
Odor	Characteristic
Odor Threshold	Not measured
pH (5% in Water)	4.0 - 6.5
Initial Boiling Point and Boiling Range	> 220 °C
Flash Point	> 100 °C Method: Penskey-Marten CC
Evaporation Rate	Not applicable.
Flammability (solid, gas)	Not applicable.
Upper/Lower Flammability or Explosive Limits	No data available.
Vapor Pressure	No data available.
Relative Vapor Density (air = 1)	> 1 (in relation to air)
Relative Density	1.0 (water = 1.00 g/cm^3 at 20 °C)
Water Solubility	Dispersable.
Partition Coefficient (n-octanol/water)	No data available.
Auto-Ignition Temperature	No data available.
Decomposition Temperature	No data available.
Viscosity, kenematic	No data available.
9.2. Other Information	No relevant additional information available

SECTION 10. STABILITY AND REACTIVITY

10.1. Reactivity The product is non-reactive under normal conditions of use and transport.

10.2. Chemical Stability The product is stable under normal conditions.

10.3. Possibility of Hazardous Reactions Hazardous polymerization does not occur.

10.4. Conditions to Avoid Avoid contact with strong oxidizing agents. Avoid storage in un-agitated bulk containers. Avoid storage near extreme heat and open flame. Do not freeze.

10.5. Incompatible Materials Strong oxidizing agents

10.6. Hazardous Decomposition Products In case of combustion it may generate carbon monoxide, besides CO_2.

SECTION 11. TOXICOLOGICAL INFORMATION

General Information Not available

Information on the Likely Routes of Exposure

Ingestion Not expected to be orally toxic. May cause gastrointestinal discomfort if swallowed. In normal use, ingestion is not considered a probable route of exposure.

Inhalation Not expected to be toxic by inhalation. However, prolonged inhalation of vapors released from hot or curing product may be irritating to the nose, throat or lungs.

Skin Contact Possible irritation may occur from repeated long-term exposure of fully active product.

Eye Contact Exposure may be irritating to the eyes.

Symptoms Not available

11.1. Information on Toxicological Effects

The toxicological information is taken from an analogous substance

Acute Toxicity

- **oral**
  LD50
  Species: Rat
  Dose: > 2,000 mg/kg
  Method: OECD Test Guideline 401
  LD50
  Species: Rat
  Dose: > 2,000 mg/kg
  Method: OECD 423
- **dermal** No Data Available.
- **inhalation** No Data Available.

Serious Eye Damage/Eye Irritation Result: This material may cause irritation / damage to the eyes.

Skin Corrosion/Irritation Some people may experience skin sensitization from contact with this product.

Respiratory or Skin Sensitization No Data Available.

Repeated Dose Toxicity No Data Available.

CMR Assessment

- **Carcinogenicity** No Data Available.
- **Mutagenicity** No Data Available.
- **Teratogenicity** No Data Available.
- **Toxicity to Reproduction** No Data Available.

Carcinogenicity Not listed by NTP, IARC, ACGIH, or OSHA as a carcinogen.

Specific Target Organ Toxicity - Single Exposure No Data Available.

Specific Target Organ Toxicity - Repeated Exposure No Data Available.

Aspiration Hazard No Data Available.

Other Information Possible Irritantation to the skin
Possible irritantation/damage to the eyes

12. ECOLOGICAL INFORMATION

The toxicological information is taken from an analogous substance

Ecotoxicology Assessment

- **Acute Aquatic Toxicity** No data available.
- **Chronic Aquatic Toxicity** No data available.

Toxicity

- **Aquatoxicity, fish** No data available.
- **Aquatoxicity, invertebrates** No data available.
- **Aquatoxicity, algae / aquatic plants** No data available.
- **Toxicity in Microorganisms** No data available.
- **Chronic Toxicity in Fish** No data available.

- **Chronic Toxicity Aquatic Invertebrates** — No data available.
- **Toxicity in Terrestrial Plants** — No data available.
- **Toxicity to Above- Ground Organisms** — No data available.

Persistence and Degradability

- **Photodegradation** — No data available.
- **Biological degradability** — Result: not readily degradable
  The product is not readily biodegradable according to OECD criteria.
- **Physico-chemical removability** — No data available.
- **Biochemical Oxygen Demand (BOD)** — No data available.
- **Chemical Oxygen Demand (BOD)** — No data available.
- **Relation of BOD/COD** — No data available.
- **Dissolved organic carbon (DOC)** — No data available.
- **Adsorbed organic bound halogens (AOX)** — No data available.
- **Distribution among environmental compartments** — No data available.

Bioaccumulative potential

- **Bioaccumulation** — No data available.

Mobility in Soil

- **Environmental distribution** — No data available.

Results of PBT and vPvB Assessment

- **PBT and vPvB Assessment** — No data available.

Other Adverse Effects — No data available.

Remarks — No data available.

General Information — Do not allow to enter soil, waterways or waste water canal.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1. Waste Treatment Methods

Residual Waste Test your waste using appropriate methods to determine if it meets applicable definitions of hazardous wastes.
Dispose of absorbed material in accordance local regulations. Avoid discharge into water courses or onto the ground. Dispose of contaminated water in a contained waste treatment system.

Contaminated Packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Offer rinsed packaging material to local recycling facilities.

EU Waste Code Waste codes should be assigned by the user based on the application for which the product was used.

Disposal Methods/Information Dispose should be in accordance with current applicable law and regulations.

SECTION 14. TRANSPORT INFORMATION

General Not regulated as dangerous goods

ADR Not regulated as dangerous goods

RID Not regulated as dangerous goods

ADN Not regulated as dangerous goods

IATA Not regulated as dangerous goods

IMDG Not regulated as dangerous goods

SECTION 15. REGULATORY INFORMATION

15.1. Safety, Health and Environmental Regulations/Legislation Specific for the Substance/Mixture

EU Regulations

Authorizations

Regulation (EC) No 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not Listed

Restrictions on Use

Regulation (EC) No 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use

Not Listed

Other Regulations This product is classified and labeled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.

15.2. Chemical Safety Assessment No Chemical Safety Assessment has been carried out.

SECTION 16. OTHER INFORMATION

Special Considerations Although this product is not hazardous under normal conditions of use, continue to follow standard industrial hygiene practices and mill regulations. Chemical exposure should always be kept to a minimum.

R-phrases and H-statements Under Sections 2 to 15

H316 - Causes mild skin irritation.
H320 - Causes eye irritation

P261 - Avoid breathing dust/fume/gas/mist/vapours/spray
P264 - Wash skin thoroughly after handling.

P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
P337+313 - If eye irritation persists get medical advice/attention
P332+313 - If skin irritation occurs: Get medical advice/attention.
P363 - Wash contaminated clothing before reuse.

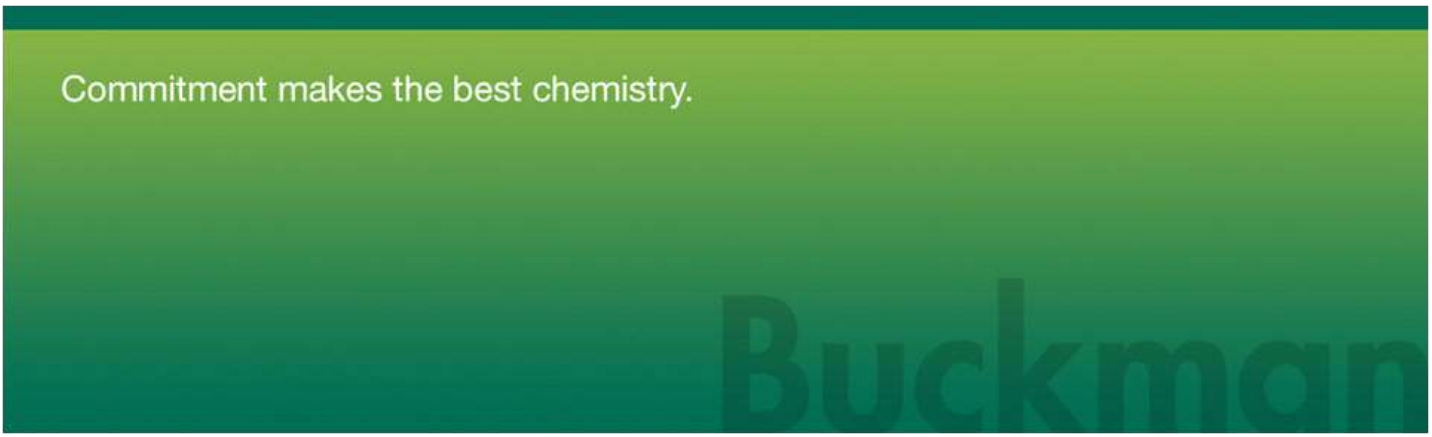
P501 - Dispose of contents/container in accordance with local/regional/national regulations.

This SDS was prepared and is to be used only for this product in its present form. If this material is altered or is used as a component in another material, the information on this SDS may not be applicable. This document is generated for the purpose of distributing health, safety, and environmental data. It is not a specification sheet nor should any displayed data be construed as a specification. Some of the information presented and conclusions drawn herein are from sources other than direct test data on the product.

This information and the data herein are believed to be accurate and have been compiled from sources believed to be reliable. Buyer assumes all risk of use, storage, and handling of the product in compliance with federal, state, and local laws and regulations.

Process Applications, Ltd. will not be liable for claims relating to any party's use of or reliance on information and data contained herein regardless of whether it is claimed that the information and the data are inaccurate, incomplete, or otherwise misleading.

Busperse 59LO



Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Commission Regulation (EU) 2015/830 - United Kingdom (UK)

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1 Product identifier

Product name	**Busperse 59LO**
Physical state	Liquid.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Industry:	Pulp & Paper
Product use:	Dispersant

1.3 Details of the supplier of the safety data sheet

Manufacturer	**n.v. Buckman Laboratories .** Wondelgemkaai 159 9000 Gent - **BELGIUM** 0032 (0)9 257 92 11
Distributor	**Buckman Laboratories Ltd.** Lancashire Gate - 21 Tiviot Dale Stockport - Cheshire SK1 1TD - **UK** 0032 (0)9 257 92 11
e-mail address of person responsible for this SDS	sds@buckman.com

1.4 Emergency telephone number

Supplier

Telephone number	0032 (0)9 257 93 00
Hours of operation	24/7

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Eye Dam. 1, H318
Skin Sens. 1, H317

Classification according to Directive 1999/45/EC [DPD]

Xi; R36
R43

See Section 16 for the full text of the R phrases or H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms

Signal word Danger

Hazard statements H318 - Causes serious eye damage.
H317 - May cause an allergic skin reaction.

Precautionary statements

General Not applicable.

Prevention P280 - Wear protective gloves: 1 - 4 hours (breakthrough time): Recommended: Chemical-resistant gloves. (nitrile, neoprene, polyvinyl chloride (PVC), butyl rubber). Wear eye or face protection: Recommended: safety glasses with side-shields., face shield..
P261 - Avoid breathing vapour.

Response P305 + P351 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Immediately call a POISON CENTER or physician.

Storage Not applicable.

Disposal P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients Amides, tall-oil fatty, N,N-di-Me
Poly(oxy-1,2-ethanediyl), α-isodecyl-ω-hydroxy-

Supplemental label elements Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Special packaging requirements

Containers to be fitted with child-resistant fastenings Not applicable.

Tactile warning of danger Not applicable.

2.3 Other hazards

Other hazards which do not result in classification None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Mixture

Product/ingredient name	Identifiers	%	Classification		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
Amides, tall-oil fatty, N, N-di-Me	REACH #: 01-2119983524-29 EC: 269-665-4 CAS: 68308-74-7	≥10 - <25	R43 N; R50	Skin Sens. 1B, H317 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 3, H412	[1]
Poly(oxy-1,2-ethanediyl), α-isodecyl-ω-hydroxy-	CAS: 61827-42-7	≤10	Xn; R22 Xi; R41	Acute Tox. 4, H302 Eye Dam. 1, H318	[1]
			See Section 16 for the full text of the R-phrases declared above.	**See Section 16 for the full text of the H statements declared above.**	

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs or vPvBs or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard
[2] Substance with a workplace exposure limit
[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
[5] Substance of equivalent concern

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact

Get medical attention immediately. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Chemical burns must be treated promptly by a physician.

Inhalation

Get medical attention immediately. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact

Get medical attention immediately. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 20 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion

Get medical attention immediately. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in

SECTION 4: First aid measures

recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact Causes serious eye damage.

Inhalation No known significant effects or critical hazards.

Skin contact May cause an allergic skin reaction.

Ingestion No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact Adverse symptoms may include the following:
pain
watering
redness

Inhalation No specific data.

Skin contact Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur

Ingestion Adverse symptoms may include the following:
stomach pains

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous combustion products Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

5.3 Advice for firefighters

Special precautions for fire-fighters Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

SECTION 5: Firefighting measures

Special protective equipment for fire-fighters

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders

If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

6.3 Methods and material for containment and cleaning up

Spill

Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

SECTION 7: Handling and storage

7.3 Specific end use(s)

Recommendations Not available.

Industrial sector specific solutions Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Recommended monitoring procedures : Not applicable.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead. Recommended: safety glasses with side-shields., face shield.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. 1 - 4 hours (breakthrough time): Recommended: Chemical-resistant gloves. (nitrile, neoprene, polyvinyl chloride (PVC), butyl rubber)

Body protection : Wear suitable protective clothing, gloves and eye/face protection. Recommended: Wear protective helmet with brim. Wear work clothing with long sleeves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: Wear protective shoes.

SECTION 8: Exposure controls/personal protection

Respiratory protection	:	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
Environmental exposure controls	:	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	Liquid. [Pale yellow to amber liquid]
Colour	Not available.
Odour	Not available.
Odour threshold	Not available.
pH	9.25
Melting point/freezing point	-25°C
Initial boiling point and boiling range	100°C
Flash point	Closed cup: >100°C
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Burning time	Not applicable.
Burning rate	Not applicable.
Upper/lower flammability or explosive limits	Not applicable.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	Not available.
Density	0.83 to 0.86 g/cm³ [25°C (77°F)]
Solubility(ies)	Not available.
Solubility in water	Not available.
Partition coefficient: n-octanol/ water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Dynamic (room temperature): 0 to 15 mPa·s Kinematic (40°C): 0.209 cm^2/s
Explosive properties	Not available.
Oxidising properties	Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability The product is stable.

10.3 Possibility of hazardous reactions Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid No specific data.

10.5 Incompatible materials No specific data.

10.6 Hazardous decomposition products Under normal conditions of storage and use, hazardous decomposition products should not be produced. Hazardous combustion products : See Section 5.2 of the safety data sheet.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Busperse 59LO	LD50 Oral	Rat	>5000 mg/kg	-
Amides, tall-oil fatty, N,N-di-Me	LD50 Dermal	Mouse	>5000 mg/kg	-
	LD50 Dermal	Rabbit - Male	7128 mg/kg Based on similar product.(Active ingredient : 90%)	-
	LD50 Oral	Rabbit	>5000 mg/kg Based on similar product.	-
	LD50 Oral	Rat - Female	5000 to 10000 mg/kg Based on similar product. (Active ingredient : 90%)	-
Poly(oxy-1,2-ethanediyl), α-isodecyl-ω-hydroxy-	LD50 Dermal	Rat	4000 mg/kg	-
	LD50 Oral	Rat	1360 mg/kg	-

Conclusion/Summary Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Amides, tall-oil fatty, N,N-di-Me	Eyes - Cornea opacity	Rabbit	0	-	-
	Eyes - Iris lesion	Rabbit	0	-	-
	Eyes - Redness of the conjunctivae	Rabbit	0	-	48 hours
	Eyes - Redness of the conjunctivae	Rabbit	0.3	-	24 hours
Poly(oxy-1,2-ethanediyl), α-isodecyl-ω-hydroxy-	Eyes - Severe irritant	Rabbit	-	24 hours 100 microliters	-
	Skin - Not irritating	Rabbit	-	-	-

Conclusion/Summary Not available.

Sensitiser

SECTION 11: Toxicological information

Product/ingredient name	Route of exposure	Species	Result
Amides, tall-oil fatty, N,N-di-Me	skin	Mouse	Sensitising

Conclusion/Summary Not available.

Mutagenicity

Product/ingredient name	Test	Experiment	Result
Amides, tall-oil fatty, N,N-di-Me	OECD 471 471 Bacterial Reverse Mutation Test OECD 476 476 In vitro Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Bacteria Experiment: In vitro Subject: Mammalian-Animal	Negative Negative

Conclusion/Summary Not available.

Carcinogenicity

Conclusion/Summary Not available.

Reproductive toxicity

Conclusion/Summary Not available.

Developmental toxicity

Conclusion/Summary Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure Not available.

Potential acute health effects

Inhalation No known significant effects or critical hazards.

Ingestion No known significant effects or critical hazards.

Skin contact May cause an allergic skin reaction.

Eye contact Causes serious eye damage.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation No specific data.

Ingestion Adverse symptoms may include the following:
stomach pains

Skin contact Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur

Eye contact Adverse symptoms may include the following:
pain
watering
redness

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects Not available.

SECTION 11: Toxicological information

Potential delayed effects Not available.

Long term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
Amides, tall-oil fatty, N,N-di-Me	Sub-acute NOAEL Oral	Rat	1000 mg/kg	14 days
	Chronic NOAEL Oral	Rat	50 mg/kg	-

Conclusion/Summary Not available.

General Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity No known significant effects or critical hazards.

Teratogenicity No known significant effects or critical hazards.

Developmental effects No known significant effects or critical hazards.

Fertility effects No known significant effects or critical hazards.

Other information Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Busperse 59LO	Acute EC50 >1000 mg/l	Micro-organism	3 hours
	Acute LC50 7.7 ppm	Fish - Oncorhynchus mykiss	96 hours
	Acute NOEC 6 ppm	Fish - Oncorhynchus mykiss	96 hours
Amides, tall-oil fatty, N,N-di-Me	Acute EC50 0.75 mg/l	Daphnia	48 hours
	Acute EC50 >1000 mg/l Fresh water	Micro-organism	3 hours
	Acute LC50 >1 mg/l	Fish	96 hours
	Chronic LOAEL >0.75 mg/l	Daphnia	21 days
	Chronic NEL 0.75 mg/l	Daphnia	21 days
Poly(oxy-1,2-ethanediyl), α-isodecyl-ω-hydroxy-	Acute EC50 10 to 100 mg/l	Algae	72 hours Based on similar product.
	Acute EC50 10 to 100 mg/l	Daphnia	48 hours Based on similar product.

Conclusion/Summary Not available.

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Amides, tall-oil fatty, N,N-di-Me	OECD 301 301F Ready Biodegradability - Manometric Respirometry Test	69 % - Readily - 28 days	-	-
Poly(oxy-1,2-ethanediyl), α-isodecyl-ω-hydroxy-	OECD 301B 301B Ready Biodegradability -	>60 % - Readily - 28 days	-	-

SECTION 12: Ecological information

	CO2 Evolution Test			

Conclusion/Summary Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Amides, tall-oil fatty, N,N-di-Me	-	-	Readily
Poly(oxy-1,2-ethanediyl), α-isodecyl-ω-hydroxy-	-	-	Readily

12.3 Bioaccumulative potential

Not available.

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC}) Not available.

Mobility Not available.

12.5 Results of PBT and vPvB assessment

PBT Not applicable.

vPvB Not applicable.

12.6 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste The classification of the product may meet the criteria for a hazardous waste.

Packaging

Methods of disposal The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

This preparation is not classified as dangerous according to international transport regulations (ADR/RID, IMDG or ICAO/IATA).

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Other EU regulations

Biocidal products regulation

Not applicable.

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

15.2 Chemical safety assessment Not applicable.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms

ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Eye Dam. 1, H318	Calculation method
Skin Sens. 1, H317	Calculation method

Full text of abbreviated H statements

H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H400	Very toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

Acute Tox. 4, H302	ACUTE TOXICITY (oral) - Category 4
Aquatic Acute 1, H400	ACUTE AQUATIC HAZARD - Category 1
Aquatic Chronic 3, H412	LONG-TERM AQUATIC HAZARD - Category 3
Eye Dam. 1, H318	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
Skin Sens. 1, H317	SKIN SENSITIZATION - Category 1
Skin Sens. 1B, H317	SKIN SENSITIZATION - Category 1B

Full text of abbreviated R phrases

R22- Harmful if swallowed.
R41- Risk of serious damage to eyes.
R36- Irritating to eyes.
R43- May cause sensitisation by skin contact.
R50- Very toxic to aquatic organisms.

SECTION 16: Other information

Full text of classifications [DSD/DPD]	Xn - Harmful Xi - Irritant N - Dangerous for the environment
Date of printing	14/05/2016
Date of issue/ Date of revision	13/05/2016
Date of previous issue	10/05/2016
Version	8.01

This version supersedes any version issued before this date.

Notice to reader

The information in this SDS is provided in good faith and to the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information relied upon to compile this SDS. This SDS relates only to the specific material designated herein and is not valid for use of the material in combination with any other material or outside the applications described herein.
No warranty with regard to the properties of the material is hereby expressed or implied. Final determination of suitability for purpose of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Buckman
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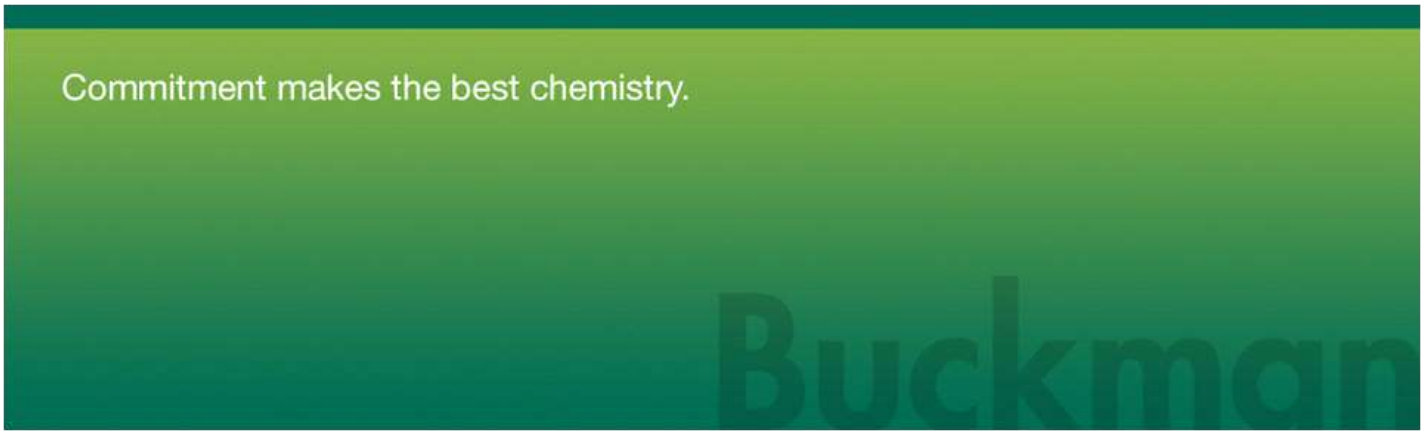

REGULATORY FACT SHEET

Food Contact

FDA - US Food And Drug Administration. CFR - Code of Federal Regulations Title 21 (version April 2015):

The product is compliant with the following chapters:
§ 176.210 - Defoaming agents used in the manufacture of paper and paperboard.

BfR Recommendations on Food Contact Materials (Version July 2015):

This product is not BfR approved.

Ecolabel

Nordic Swan

The product is compliant with Nordic Ecolabelling of Paper Products - Chemical Module Version 2.3
The product is compliant with Nordic Ecolabelling of Tissue Paper Version 5.4
The product has been registered on My Swan Account, the online database of Nordic Ecolabelling.

EU - Flower

The product is compliant with EU flower ecolabel for tissue paper (2009/568/EU)
The product is compliant with EU flower ecolabel for copying and graphic paper (2011/332/EU)
The product is compliant with EU flower ecolabel for printed paper (2012/481/EU)

Blaue Engel

The product is not compliant with RAL-UZ 14: Recycled Paper Edition July 2014
The product is not compliant with RAL-UZ 5: Sanitary Paper Products Edition July 2014
The product is not compliant with RAL-UZ 56: Recycled Cardboard Edition July 2014
The product is not compliant with RAL-UZ 72: Printing and Publication Papers primarily made of waste paper Edition July 2014

REACH

This product and all of its ingredient are compliant with REACH.
The Buckman's REACH position paper and SVHC statement can be obtained on demand.

Kosher and Kosher for Passover

This product is Kosher certified.

This product is Kosher for Passover certified.

MATERIALS OF CONSTRUCTION

Compatible materials

This product is compatible with the following materials:

304 Stainless steel
316 Stainless steel
Admiralty Brass
Aluminium 5052
C1010 Mild Steel
Flexible PVC
Nylon 6/6
Plexiglass
Polyethylene High Density
Polyethylene Low Density
Rigid PVC
Teflon
Viton

Incompatible materials

This product is incompatible with the following materials:

ABS Plastic
Buna-N Rubber
Butyl Rubber
Copper
EPDM Rubber
Neoprene
Silicone Rubber
Tygon

Contact Details

For Regulatory content questions, please contact the Regulatory Affairs team on the e-mail address sds@buckman.com

For questions about the materials of construction, please contact the Field Equipment Team EMEA on the e-mail address FieldEquipmentDep_EMEA@buckman.com.

Date of printing	14/05/2016
Date of issue/ Date of revision	13/05/2016
Version	8.01
Validated by	Regulatory Affairs Team and Field Equipment Team of Buckman EMEA.

This document can be considered as an official statement
This version supersedes any version issued before this date.

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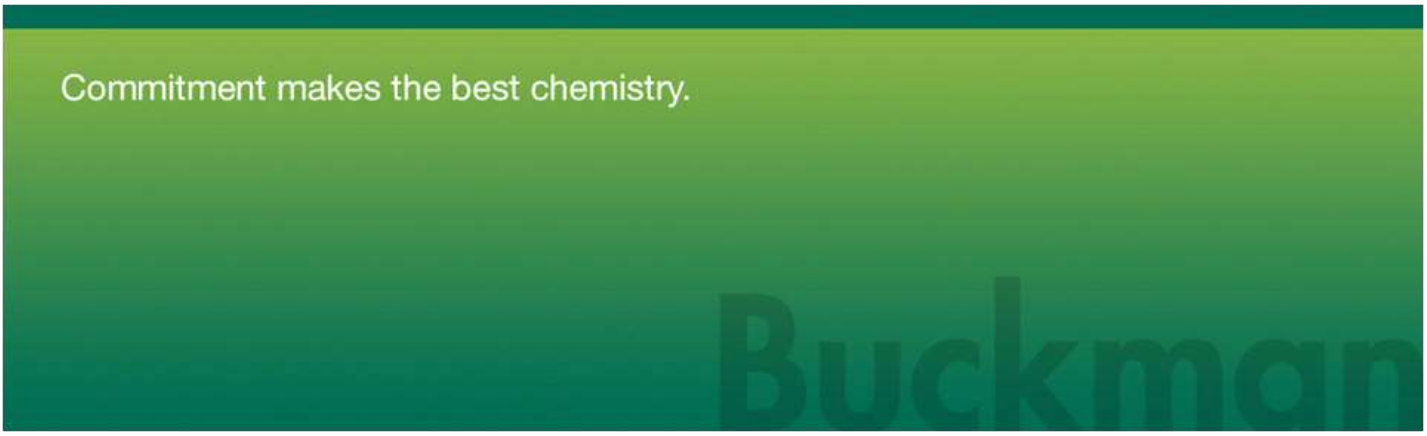
Bufloc 5031



Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Commission Regulation (EU) 2015/830 - United Kingdom (UK)

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1 Product identifier

Product name	**Bufloc 5031**
Physical state	Liquid.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

Industry:	Pulp & Paper
Product use:	Coagulant

Uses advised against

None.

1.3 Details of the supplier of the safety data sheet

Manufacturer	**n.v. Buckman Laboratories .** Wondelgemkaai 159 9000 Gent - **BELGIUM** 0032 (0)9 257 92 11
Distributor	**Buckman Laboratories Ltd.** Lancashire Gate - 21 Tiviot Dale Stockport - Cheshire SK1 1TD - **UK** 0032 (0)9 257 92 11
e-mail address of person responsible for this SDS	sds@buckman.com

1.4 Emergency telephone number

Supplier

Telephone number	0032 (0)9 257 93 00
Hours of operation	24/7

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Aquatic Chronic 3, H412

2.2 Label elements

Hazard pictograms

Signal word No signal word.

Hazard statements H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements

General Not applicable.

Prevention P273 - Avoid release to the environment.

Response Not applicable.

Storage Not applicable.

Disposal P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Special packaging requirements

Containers to be fitted with child-resistant fastenings Not applicable.

Tactile warning of danger Not applicable.

2.3 Other hazards

Other hazards which do not result in classification None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Mixture

SECTION 3: Composition/information on ingredients

Product/ingredient name	Identifiers	%	Classification Regulation (EC) No. 1272/2008 [CLP]	Type
1,2-Ethanediamine, polymer with 2-(chloromethyl)oxirane and N-methylmethanamine	CAS: 42751-79-1	≥50 - ≤75	Aquatic Chronic 3, H412 **See Section 16 for the full text of the H statements declared above.**	[1]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs or vPvBs or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard
[2] Substance with a workplace exposure limit
[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
[5] Substance of equivalent concern

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention if irritation occurs.

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

SECTION 4: First aid measures

Eye contact	No known significant effects or critical hazards.
Inhalation	No known significant effects or critical hazards.
Skin contact	No known significant effects or critical hazards.
Ingestion	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	No specific data.
Inhalation	No specific data.
Skin contact	No specific data.
Ingestion	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Specific treatments	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous combustion products	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides halogenated compounds

5.3 Advice for firefighters

Special precautions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

SECTION 6: Accidental release measures

For emergency responders

If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and material for containment and cleaning up

Spill

Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

Recommendations

Not available.

Industrial sector specific solutions

Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Recommended monitoring procedures : Not applicable.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. Recommended: face shield safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. 1 - 4 hours (breakthrough time): Recommended: Chemical-resistant gloves. (nitrile, neoprene, polyvinyl chloride (PVC), butyl rubber)

Body protection : Wear suitable protective clothing, gloves and eye/face protection. Recommended: Wear protective helmet with brim. Wear work clothing with long sleeves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: Wear protective shoes.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	Liquid.
Colour	clear, pale yellow liquid
Odour	Not available.
Odour threshold	Not available.
pH	4 to 7 **Concentration (%):** 10
Melting point/freezing point	-8°C
Initial boiling point and boiling range	100 to 150°C
Flash point	Closed cup: >100°C
Evaporation rate	Not available.
Flammability (solid, gas)	
Burning time	Not applicable.
Burning rate	Not applicable.
Upper/lower flammability or explosive limits	
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	Not available.
Density	1.13 to 1.16 g/cm³ [25°C (77°F)]
Solubility(ies)	Not available.
Solubility in water	Not available.
Partition coefficient: n-octanol/ water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Dynamic (room temperature): 500 to 1000 mPa·s
Explosive properties	Not available.
Oxidising properties	Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability The product is stable.

10.3 Possibility of hazardous reactions Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid No specific data.

10.5 Incompatible materials No specific data.

SECTION 10: Stability and reactivity

10.6 Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. Hazardous combustion products : See Section 5.2 of the safety data sheet.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Bufloc 5031	LD50 Dermal LD50 Oral	Rabbit Rat	>2000 mg/kg >5000 g/kg	- -

Conclusion/Summary Not available.

Irritation/Corrosion

Conclusion/Summary Not available.

Sensitiser

Skin Not sensitizing

Mutagenicity

Conclusion/Summary Not available.

Carcinogenicity

Conclusion/Summary Not available.

Reproductive toxicity

Conclusion/Summary Not available.

Developmental toxicity

Conclusion/Summary Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure Not available.

Potential acute health effects

Inhalation No known significant effects or critical hazards.

Ingestion No known significant effects or critical hazards.

Skin contact No known significant effects or critical hazards.

Eye contact No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation No specific data.

Ingestion No specific data.

Skin contact No specific data.

Eye contact No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

SECTION 11: Toxicological information

Long term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Potential chronic health effects

Not available.

Conclusion/Summary Not available.

General No known significant effects or critical hazards.

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity No known significant effects or critical hazards.

Teratogenicity No known significant effects or critical hazards.

Developmental effects No known significant effects or critical hazards.

Fertility effects No known significant effects or critical hazards.

Other information Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Bufloc 5031	Acute EC50 10 to 100 mg/l Based on similar product. Acute IC50 10 to 100 mg/l Based on similar product. Acute LC50 10 to 100 mg/l Based on similar product.	Daphnia Algae Fish	48 hours 72 hours 96 hours

Conclusion/Summary Not available.

12.2 Persistence and degradability

Conclusion/Summary The effects of this product on aquatic organisms are rapidly and significantly mitigated by the presence of dissolved organic carbon in the aquatic environment.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
BFL5031 1,2-Ethanediamine, polymer with 2-(chloromethyl)oxirane and N-methylmethanamine	- -	- -	Not readily Not readily

12.3 Bioaccumulative potential

Not available.

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC}) Not available.

Mobility Not available.

12.5 Results of PBT and vPvB assessment

PBT Not applicable.

vPvB Not applicable.

SECTION 12: Ecological information

12.6 Other adverse effects No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste The classification of the product may meet the criteria for a hazardous waste.

Packaging

Methods of disposal The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

This preparation is not classified as dangerous according to international transport regulations (ADR/RID, IMDG or ICAO/IATA).

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Other EU regulations

Ozone depleting substances (1005/2009/EU)

Ingredient name	Status
Not listed.	

Prior Informed Consent (PIC) (649/2012/EU)

Ingredient name	Annex	Status
Not listed.		

SECTION 15: Regulatory information

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

15.2 Chemical safety assessment Not applicable.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms

ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Aquatic Chronic 3, H412	Calculation method

Full text of abbreviated H statements	H412	Harmful to aquatic life with long lasting effects.
Full text of classifications [CLP/GHS]	Aquatic Chronic 3, H412	LONG-TERM AQUATIC HAZARD - Category 3
Date of printing	11/29/2017	
Date of issue/ Date of revision	11/22/2017	
Date of previous issue	8/29/2017	
Version	3.08	

This version supersedes any version issued before this date.

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Buckman
EUROPE
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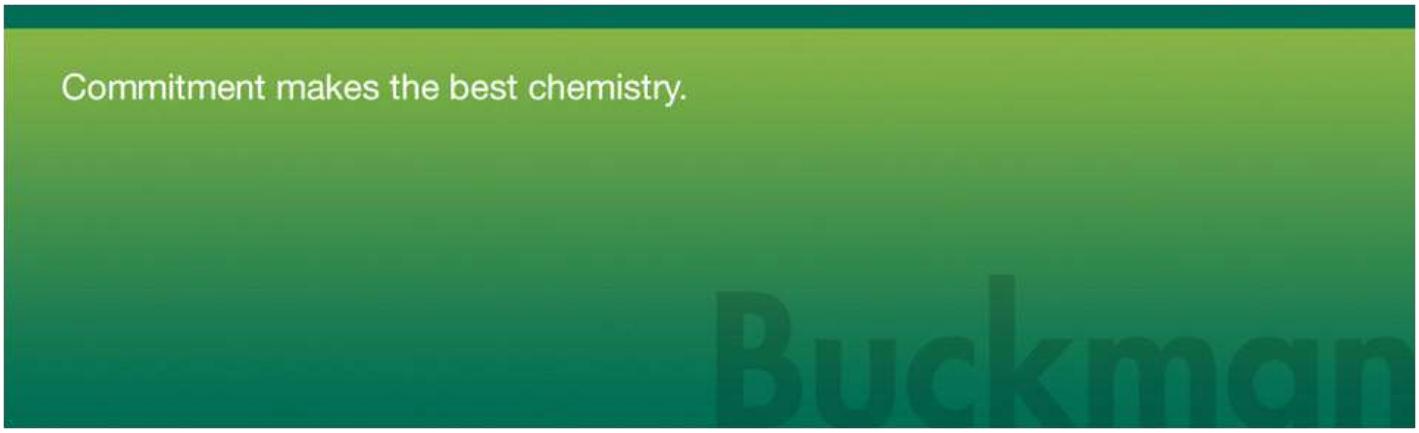
N.AFRICA

Bufloc 5031



REGULATORY FACT SHEET

Food Contact

FDA - US Food And Drug Administration. CFR - Code of Federal Regulations Title 21 (version April 2017):

The product is compliant with the following chapters:

§ 176.170 - Components of paper and paperboard in contact with aqueous and fatty foods.
§ 176.180 - Components of paper and paperboard in contact with dry food.

BfR Recommendations on Food Contact Materials (Version July 2016):

The product is compliant with the following chapters:

XXXVI: Paper and board for food contact.
XXXVI/2: Paper and Paperboard for Baking Purposes.

Limitations:

Listed in IV. Paper and paperboard (including cardboard) which is used in microwave ovens
Copolymer of dimethylamine ethylenediamine and epichlorohydrin, max. 3 %

Ecolabel

Nordic Swan

The product has been registered on My Swan Account, the online database of Nordic Ecolabelling.
The product is compliant with Nordic Ecolabelling of Paper Products - Chemical Module Version 2.3

EU - Flower

The product is compliant with EU flower ecolabel for tissue paper (2009/568/EU)
The product is compliant with EU flower ecolabel for printed paper (2012/481/EU)

Blaue Engel

The product is compliant with RAL-UZ 5: Sanitary Paper Products Edition July 2014
The product is compliant with RAL-UZ 14: Recycled Paper Edition July 2014
The product is compliant with RAL-UZ 56: Recycled Cardboard Edition July 2014
The product is compliant with RAL-UZ 72: Printing and Publication Papers primarily made of waste paper Edition July 2014

REACH

This product and all of its ingredient are compliant with REACH.
The Buckman's REACH position paper and SVHC statement can be obtained on demand.

Kosher and Kosher for Passover

This product is Kosher certified.

MATERIALS OF CONSTRUCTION

Compatible materials

This product is compatible with the following materials:

Teflon
Penton
Polyethylene
Polypropylene
Rigid PVC
Flexible PVC
Nylon 6/6
304 Stainless steel
304SS Mild Steel
Fiberglass-reinforced Plastic
Polyethylene High Density
Viton

Incompatible materials

This product is incompatible with the following materials:

Aluminium 5052
C1010 Mild Steel
C1020 Mild Steel
Cast iron
Copper

Contact Details

For Regulatory content questions, please contact the Regulatory Affairs team on the e-mail address sds@buckman.com

For questions about the materials of construction, please contact the Field Equipment Team EMEA on the e-mail address FieldEquipmentDep_EMEA@buckman.com.

Date of printing	11/29/2017
Date of issue/ Date of revision	11/22/2017
Version	3.08

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Commission Regulation (EU) 2015/830 - United Kingdom (UK)

Product name:

Bufloc 5031

Validated by Regulatory Affairs Team and Field Equipment Team of Buckman EMEA.

This document can be considered as an official statement
This version supersedes any version issued before this date.

Notice to reader

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This document relates only to the specific material designated herein and is not valid for use of the material in combination with any other material or outside the applications described herein.
No warranty with regard to the properties of the material is hereby expressed or implied. Final determination of suitability for purpose of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 06.05.2015 Version number 1 Revision: 10.04.2015

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name: BIM CP 5072

1.2 Relevant identified uses of the substance or mixture and uses advised against

No further relevant information available.

Application of the substance / the mixture Core pick up adhesive

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

BIM United Kingdom Ltd
Prince Street
BOLTON
BL1 2NP
UNITED KINGDOM
Tel: +44 1204 366 997

Further information obtainable from:

Regulatory affairs department:
req@bimkemi.com

1.4 Emergency telephone number:

Swedish Poisons Information Centre (English and Swedish): +46-8-33 70 43 (24h)
Local BIM office: +44 1204 366 997 (Office hours)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

The product is not classified according to the CLP regulation.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 Void

Hazard pictograms Void

Signal word Void

Hazard statements Void

Additional information:

Contains reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1). May produce an allergic reaction.
Safety data sheet available on request.

2.3 Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Description: Polymer dispersion

Dangerous components: Void

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Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 06.05.2015 Version number 1 Revision: 10.04.2015

Trade name: BIM CP 5072

(Contd. of page 1)

Additional information: For the wording of the listed risk phrases refer to section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information: No special measures required.

After inhalation: Supply fresh air; consult doctor in case of complaints.

After skin contact:

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

After eye contact: Rinse opened eye for several minutes under running water.

After swallowing:

Rinse out mouth and then drink plenty of water.

If symptoms persist consult doctor.

4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents:

CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Use fire extinguishing methods suitable to surrounding conditions.

For safety reasons unsuitable extinguishing agents: Water with full jet

5.2 Special hazards arising from the substance or mixture No further relevant information available.

5.3 Advice for firefighters

Protective equipment: No special measures required.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

The usual precautionary measures are to be adhered to when handling chemicals.

6.2 Environmental precautions: Do not allow product to reach sewage system or any water course.

6.3 Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

6.4 Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

The usual precautionary measures are to be adhered to when handling chemicals.

Information about fire - and explosion protection: No special measures required.

(Contd. on page 3)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 06.05.2015 Version number 1 Revision: 10.04.2015

Trade name: BIM CP 5072

(Contd. of page 2)

7.2 Conditions for safe storage, including any incompatibilities
Storage:
Requirements to be met by storerooms and receptacles: No special requirements.
Information about storage in one common storage facility: Not required.
Further information about storage conditions: Protect from frost.
7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

Additional information about design of technical facilities: No further data; see item 7.

8.1 Control parameters
Ingredients with limit values that require monitoring at the workplace:
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

8.2 Exposure controls
Personal protective equipment:
General protective and hygienic measures:
The usual precautionary measures are to be adhered to when handling chemicals.
Respiratory protection: Use suitable respiratory protective device in case of insufficient ventilation.
Protection of hands:

Protective gloves

Material of gloves
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
Penetration time of glove material
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
Eye protection: Safety glasses

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
General Information
Appearance:

Form:	Liquid
Colour:	Not determined.
Odour:	No available information.
Odour threshold:	Not determined.
pH-value:	Not determined.

(Contd. on page 4)

Safety data sheet

according to 1907/2006/EC, Article 31

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Trade name: BIM CP 5072

(Contd. of page 3)

Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
Flash point:	Not applicable.
Flammability (solid, gaseous):	Not applicable.
Ignition temperature:	
Decomposition temperature:	Not determined.
Self-igniting:	Product is not selfigniting.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
Vapour pressure:	Not determined.
Density:	Not determined.
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with water:	Not determined.
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

10.1 Reactivity No decomposition if used and stored according to specifications.

10.2 Chemical stability

Thermal decomposition / conditions to be avoided:

No decomposition if used and stored according to specifications.

10.3 Possibility of hazardous reactions No dangerous reactions known.

10.4 Conditions to avoid No further relevant information available.

10.5 Incompatible materials: No further relevant information available.

10.6 Hazardous decomposition products: No decomposition if used and stored according to specifications.

(Contd. on page 5)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 06.05.2015 Version number 1 Revision: 10.04.2015

Trade name: BIM CP 5072

(Contd. of page 4)

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity:
Sensitisation: Sensitisation possible through skin contact.
Additional toxicological information:
The product is not classified as hazardous to health according to Regulation (EC) No. 1272/2008 (CLP).
When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity:
The product is not classified as hazardous to the environment according to Regulation (EC) No. 1272/2008 (CLP).
12.2 Persistence and degradability No further relevant information available.
12.3 Bioaccumulative potential No further relevant information available.
12.4 Mobility in soil No further relevant information available.
12.5 Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Recommendation Disposal must be made according to official regulations.

Uncleaned packaging:
Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

14.1 UN-Number	
ADR, ADN, IMDG, IATA	not regulated
14.2 UN proper shipping name	
ADR, ADN, IMDG, IATA	not regulated
14.3 Transport hazard class(es)	
ADR, ADN, IMDG, IATA	
Class	not regulated
14.4 Packing group	
ADR, IMDG, IATA	not regulated

(Contd. on page 6)

Safety data sheet

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Printing date 06.05.2015 Version number 1 Revision: 10.04.2015

Trade name: BIM CP 5072

(Contd. of page 5)

14.5 Environmental hazards: **Marine pollutant:**	No
14.6 Special precautions for user	Not applicable.
14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
UN "Model Regulation":	-

SECTION 15: Regulatory information

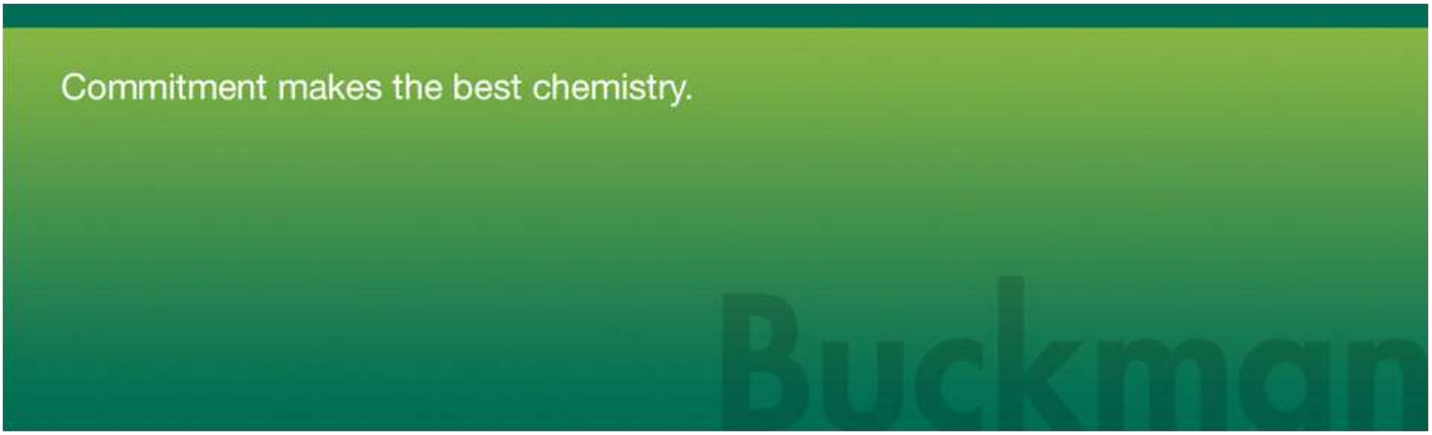
15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This safety data sheet has been drawn up in compliance with EC Regulation No. 1907/2006.
15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Department issuing MSDS: Product safety department.
Contact: Mrs. Samuelsson
Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)

Bulab 9715



Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Commission Regulation (EU) 2015/830 - United Kingdom (UK)

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1 Product identifier

Product name	**Bulab 9715**
Physical state	Liquid.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Industry:	Water treatment
Product use:	Water-boiler treatment.

1.3 Details of the supplier of the safety data sheet

Manufacturer	**n.v. Buckman Laboratories .** Wondelgemkaai 159 9000 Gent - **BELGIUM** 0032 (0)9 257 92 11
Distributor	**Buckman Laboratories Ltd.** Lancashire Gate - 21 Tiviot Dale Stockport - Cheshire SK1 1TD - **UK** 0032 (0)9 257 92 11
e-mail address of person responsible for this SDS	sds@buckman.com

1.4 Emergency telephone number

Supplier

Telephone number	0032 (0)9 257 93 00
Hours of operation	24/7

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flam. Liq. 3, H226
Acute Tox. 4, H302
Acute Tox. 3, H311
Skin Corr. 1, H314
Eye Dam. 1, H318
Repr. 2, H361fd (Fertility and Unborn child)

Classification according to Directive 1999/45/EC [DPD]

Repr. Cat. 3; R62
Xn; R21/22
C; R35

See Section 16 for the full text of the R phrases or H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms

Signal word Danger

Hazard statements

H226 - Flammable liquid and vapour.
H311 - Toxic in contact with skin.
H302 - Harmful if swallowed.
H314 - Causes severe skin burns and eye damage.
H361fd - Suspected of damaging fertility. Suspected of damaging the unborn child.

Precautionary statements

General Not applicable.

Prevention

P201 - Obtain special instructions before use.
P280 - Wear protective gloves: 1 - 4 hours (breakthrough time): Recommended: Chemical-resistant gloves. (nitrile, neoprene, polyvinyl chloride (PVC), butyl rubber). Wear eye or face protection: Recommended: safety glasses with side-shields., face shield.. Wear protective clothing: Recommended: Wear protective helmet with brim. Wear work clothing with long sleeves. Chemical-resistant protective suit..
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P241 - Use explosion-proof electrical, ventilating, lighting and all material-handling equipment.

Response

P304 + P340 + P310 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician.
P301 + P310 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.
P303 + P361 + P353 + P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Immediately call a POISON CENTER or physician.
P305 + P310 - IF IN EYES: Immediately call a POISON CENTER or physician.

Storage P235 - Keep cool.

Disposal P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients

cyclohexylamine
2-diethylaminoethanol
morpholine

SECTION 2: Hazards identification

Supplemental label elements Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Special packaging requirements

Containers to be fitted with child-resistant fastenings Not applicable.

Tactile warning of danger Not applicable.

2.3 Other hazards

Other hazards which do not result in classification None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Mixture

Product/ingredient name	Identifiers	%	Classification		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
cyclohexylamine	REACH #: 01-2119486803-29 EC: 203-629-0 CAS: 108-91-8	≥10 - ≤25	R10 Repr. Cat. 3; R62 Xn; R21/22 C; R34	Flam. Liq. 3, H226 Acute Tox. 3, H301 Acute Tox. 3, H311 Skin Corr. 1B, H314 Eye Dam. 1, H318 Repr. 2, H361fd (Fertility and Unborn child)	[1] [2]
2-diethylaminoethanol	REACH #: 01-2119488937-14 EC: 202-845-2 CAS: 100-37-8 Index: 603-048-00-6	≥10 - ≤15	R10 Xn; R20/21/22 C; R34	Flam. Liq. 3, H226 Acute Tox. 4, H302 Acute Tox. 3, H311 Acute Tox. 3, H331 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335	[1]
morpholine	REACH #: 01-2119496057-30 EC: 203-815-1 CAS: 110-91-8	≥10 - ≤15	R10 Xn; R20/21/22 C; R34	Flam. Liq. 3, H226 Acute Tox. 4, H302 Acute Tox. 3, H311 Acute Tox. 4, H332 Skin Corr. 1B, H314 Eye Dam. 1, H318	[1] [2]
			See Section 16 for the full text of the R-phrases declared above.	**See Section 16 for the full text of the H statements declared above.**	

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs or vPvBs or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

SECTION 3: Composition/information on ingredients

[1] Substance classified with a health or environmental hazard
[2] Substance with a workplace exposure limit
[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
[5] Substance of equivalent concern

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact Get medical attention immediately. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Chemical burns must be treated promptly by a physician.

Inhalation Get medical attention immediately. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact Get medical attention immediately. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 20 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion Get medical attention immediately. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. If necessary, call a poison center or physician. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact Causes serious eye damage.

Inhalation May give off gas, vapour or dust that is very irritating or corrosive to the respiratory system.

Skin contact Causes severe burns. Toxic in contact with skin.

Ingestion Harmful if swallowed. May cause burns to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact Adverse symptoms may include the following:
pain
watering
redness

SECTION 4: First aid measures

Inhalation	Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations
Skin contact	Adverse symptoms may include the following: pain or irritation redness blistering may occur reduced foetal weight increase in foetal deaths skeletal malformations
Ingestion	Adverse symptoms may include the following: stomach pains reduced foetal weight increase in foetal deaths skeletal malformations

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Specific treatments	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	Use dry chemical, CO_2, water spray (fog) or foam.
Unsuitable extinguishing media	Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	Flammable liquid and vapour. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.
Hazardous combustion products	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides

5.3 Advice for firefighters

Special precautions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders

If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

6.3 Methods and material for containment and cleaning up

Spill

Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Keep away from acids. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from acids. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

SECTION 7: Handling and storage

7.3 Specific end use(s)

Recommendations Not available.

Industrial sector specific solutions Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
cyclohexylamine	**EH40/2005 WELs (United Kingdom (UK), 12/2011).** TWA: 10 ppm 8 hours. TWA: 41 mg/m³ 8 hours.
morpholine	**EH40/2005 WELs (United Kingdom (UK), 12/2011). Absorbed through skin.** STEL: 72 mg/m³ 15 minutes. STEL: 20 ppm 15 minutes. TWA: 36 mg/m³ 8 hours. TWA: 10 ppm 8 hours.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

SECTION 8: Exposure controls/personal protection

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead. Recommended: safety glasses with side-shields., face shield.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. 1 - 4 hours (breakthrough time): Recommended: Chemical-resistant gloves. (nitrile, neoprene, polyvinyl chloride (PVC), butyl rubber)

Body protection : Wear suitable protective clothing, gloves and eye/face protection. Recommended: Wear protective helmet with brim. Wear work clothing with long sleeves. Chemical-resistant protective suit.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: Wear protective shoes.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	Liquid. [clear, straw-coloured liquid]
Colour	Not available.
Odour	Not available.
Odour threshold	Not available.
pH	12 to 14
Melting point/freezing point	-20°C
Initial boiling point and boiling range	100°C
Flash point	Closed cup: 56°C [Pensky-Martens.]
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Burning time	Not applicable.
Burning rate	Not applicable.
Upper/lower flammability or explosive limits	Not applicable.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	Not available.
Density	0.93 to 1.03 g/cm³ [25°C (77°F)]

SECTION 9: Physical and chemical properties

Solubility(ies)	Not available.
Solubility in water	Not available.
Partition coefficient: n-octanol/ water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Dynamic (room temperature): 0 to 20 mPa·s
Explosive properties	Not available.
Oxidising properties	Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability The product is stable.

10.3 Possibility of hazardous reactions Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

10.5 Incompatible materials Reactive or incompatible with the following materials:
acids
oxidizing materials

10.6 Hazardous decomposition products Under normal conditions of storage and use, hazardous decomposition products should not be produced. Hazardous combustion products : See Section 5.2 of the safety data sheet.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
cyclohexylamine	LC50 Inhalation Vapour	Rat	>700 mg/m³	4 hours
	LD50 Dermal	Rabbit	275 mg/kg	-
	LD50 Oral	Rat	432 mg/kg	-
2-diethylaminoethanol	LC50 Inhalation Vapour	Rat	4.6 mg/l	4 hours
	LD50 Dermal	Rabbit	1100 mg/kg	-
	LD50 Oral	Rat	1300 mg/kg	-
morpholine	LC50 Inhalation Vapour	Rat	8 mg/m³	4 hours
	LD50 Dermal	Rabbit	500 mg/kg	-
	LD50 Oral	Rat	1738 mg/kg	-

Conclusion/Summary Not available.

Irritation/Corrosion

SECTION 11: Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
cyclohexylamine	Eyes - Severe irritant	Rabbit	-	24 hours 50 Micrograms	-
	Eyes - Severe irritant	Rabbit	-	5 minutes 100 microliters	-
	Skin - Severe irritant	Human	-	48 hours 125 milligrams	-
	Skin - Severe irritant	Rabbit	-	24 hours 2 milligrams	-
	Skin - Severe irritant	Rabbit	-	500 microliters	-
2-diethylaminoethanol	Eyes - Severe irritant	Rabbit	-	5 milligrams	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-
morpholine	Eyes - Severe irritant	Rabbit	-	2 milligrams	-
	Skin - Moderate irritant	Rabbit	-	500 milligrams	-

Conclusion/Summary Not available.

Sensitiser

Conclusion/Summary Not available.

Mutagenicity

Conclusion/Summary Not available.

Carcinogenicity

Conclusion/Summary Not available.

Reproductive toxicity

Conclusion/Summary Not available.

Developmental toxicity

Conclusion/Summary Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
2-diethylaminoethanol	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure Not available.

Potential acute health effects

Inhalation May give off gas, vapour or dust that is very irritating or corrosive to the respiratory system.

Ingestion Harmful if swallowed. May cause burns to mouth, throat and stomach.

Skin contact Causes severe burns. Toxic in contact with skin.

Eye contact Causes serious eye damage.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations

SECTION 11: Toxicological information

Ingestion	Adverse symptoms may include the following: stomach pains reduced foetal weight increase in foetal deaths skeletal malformations
Skin contact	Adverse symptoms may include the following: pain or irritation redness blistering may occur reduced foetal weight increase in foetal deaths skeletal malformations
Eye contact	Adverse symptoms may include the following: pain watering redness

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Long term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Potential chronic health effects

Not available.

Conclusion/Summary	Not available.
General	No known significant effects or critical hazards.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	Suspected of damaging the unborn child.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	Suspected of damaging fertility.
Other information	Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
cyclohexylamine	Acute EC50 29.3 mg/l	Algae - Selenastrum capricornutum	72 hours
	Acute EC50 20 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 36.3 mg/l	Daphnia	48 hours
	Acute LC50 19 mg/l	Fish	96 hours
2-diethylaminoethanol	EC50 30 mg/l	Algae	72 hours
	EC50 44 mg/l	Aquatic plants - Scenedesmus subspicatus	72 hours
	NOEC 5 mg/l	Aquatic plants - Scenedesmus subspicatus	72 hours
	Acute EC50 83.6 mg/l	Daphnia	48 hours
	Acute LC50 147 mg/l	Fish - Leuciscus idus	96 hours
morpholine	Acute EC50 58 mg/l	Algae	72 hours
	Acute EC50 28 mg/l Fresh water	Algae - Pseudokirchneriella	96 hours

SECTION 12: Ecological information

	Acute LC50 45 mg/l Acute LC50 180 mg/l Fresh water	subcapitata Daphnia - Daphnia Magna Fish - Oncorhynchus mykiss	 48 hours 96 hours

Conclusion/Summary Not available.

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
2-diethylaminoethanol	OECD 301A	90 to 100 % - Readily - 22 days	-	-

Conclusion/Summary Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
cyclohexylamine 2-diethylaminoethanol morpholine	- - -	- - -	Readily Readily Readily

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
cyclohexylamine 2-diethylaminoethanol morpholine	3,7 0,21 -2,55	3,162 <6.1 <2.8	low low low

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC}) Not available.

Mobility Not available.

12.5 Results of PBT and vPvB assessment

PBT Not applicable.

vPvB Not applicable.

12.6 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste The classification of the product may meet the criteria for a hazardous waste.

Packaging

Methods of disposal The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

SECTION 13: Disposal considerations

Special precautions

This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	UN2924	UN2924	UN2924	UN2924
14.2 UN proper shipping name	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (2-diethylaminoethanol, cyclohexylamine, morpholine)	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (2-diethylaminoethanol, cyclohexylamine, morpholine)	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (2-diethylaminoethanol, cyclohexylamine, morpholine)	Flammable liquid, corrosive, n.o.s. (2-diethylaminoethanol, cyclohexylamine, morpholine)
14.3 Transport hazard class(es)	3 (8) 	3 (8) 	3 (8) 	3 (8) 
14.4 Packing group	III	III	III	III
14.5 Environmental hazards	No.	No.	No.	No.
Additional information	**Hazard identification number** 38 **Limited quantity** LQ7 **Special provisions** 274 **Tunnel code** D/E **Transport Category:** 3	**Special provisions** 274	**Emergency schedules (EmS)** F-E, S-C **Special provisions** 223, 274	**Passenger and Cargo Aircraft** Quantity limitation: 5 L Packaging instructions: 309 **Cargo Aircraft Only** Quantity limitation: 60 L Packaging instructions: 310 **Limited Quantities - Passenger Aircraft** Quantity limitation: 1 L Packaging instructions: Y309 **Special provisions** A3

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code : Not available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Other EU regulations

Product/ingredient name	Carcinogenic effects	Mutagenic effects	Developmental effects	Fertility effects
cyclohexylamine	-	-	Repr. 2, H361d (Unborn child)	Repr. 2, H361f (Fertility)

Biocidal products regulation

Not applicable.

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

15.2 Chemical safety assessment Not applicable.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms

ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Flam. Liq. 3, H226	On basis of test data
Acute Tox. 4, H302	Calculation method
Acute Tox. 3, H311	Calculation method
Skin Corr. 1, H314	On basis of test data
Eye Dam. 1, H318	On basis of test data
Repr. 2, H361fd (Fertility and Unborn child)	Calculation method

Full text of abbreviated H statements

H226	Flammable liquid and vapour.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.

SECTION 16: Other information

	H361fd (Fertility and Unborn child)	Suspected of damaging fertility. Suspected of damaging the unborn child.
Full text of classifications [CLP/GHS]	Acute Tox. 3, H301	ACUTE TOXICITY (oral) - Category 3
	Acute Tox. 3, H311	ACUTE TOXICITY (dermal) - Category 3
	Acute Tox. 3, H331	ACUTE TOXICITY (inhalation) - Category 3
	Acute Tox. 4, H302	ACUTE TOXICITY (oral) - Category 4
	Acute Tox. 4, H332	ACUTE TOXICITY (inhalation) - Category 4
	Eye Dam. 1, H318	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
	Flam. Liq. 3, H226	FLAMMABLE LIQUIDS - Category 3
	Repr. 2, H361fd (Fertility and Unborn child)	TOXIC TO REPRODUCTION (Fertility and Unborn child) - Category 2
	Skin Corr. 1, H314	SKIN CORROSION/IRRITATION - Category 1
	Skin Corr. 1B, H314	SKIN CORROSION/IRRITATION - Category 1B
	STOT SE 3, H335	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
Full text of abbreviated R phrases	R10- Flammable. R62- Possible risk of impaired fertility. R20/21/22- Harmful by inhalation, in contact with skin and if swallowed. R21/22- Harmful in contact with skin and if swallowed. R34- Causes burns. R35- Causes severe burns.	
Full text of classifications [DSD/DPD]	Repr. Cat. 3 - Toxic to reproduction category 3 C - Corrosive Xn - Harmful	
Date of printing	13/05/2016	
Date of issue/ Date of revision	10/05/2016	
Date of previous issue	10/11/2015	
Version	6	

This version supersedes any version issued before this date.

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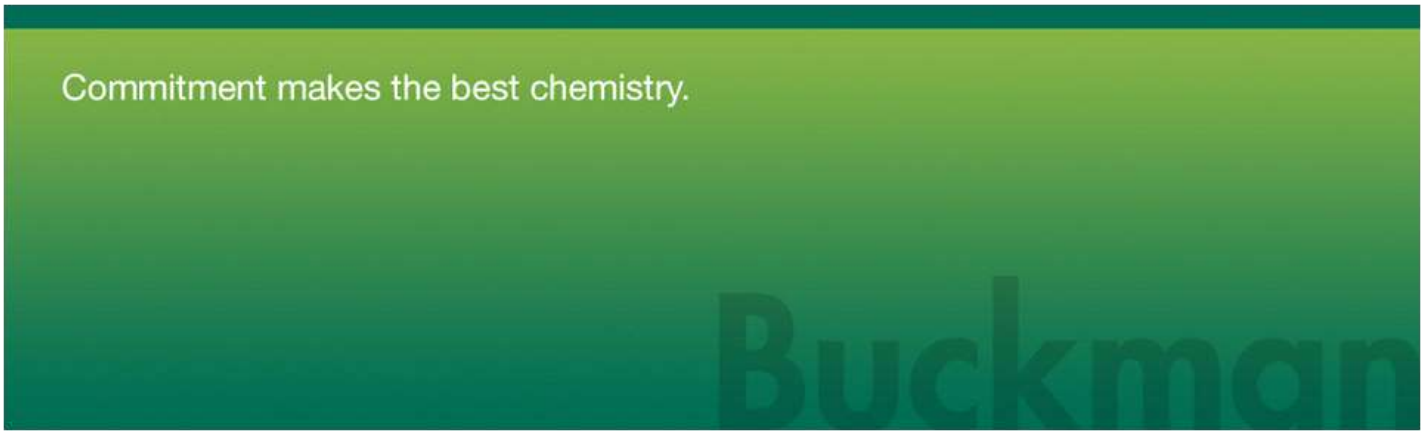
Buckman
EUROPE
MIDDLE EAST
N.AFRICA

Bulab 9715



REGULATORY FACT SHEET

Food Contact

FDA - US Food And Drug Administration. CFR - Code of Federal Regulations Title 21 (version April 2015):

The product is compliant with the following chapters:

§ 173.310 - Boiler water additives.

REACH

This product and all of its ingredient are compliant with REACH.
The Buckman's REACH position paper and SVHC statement can be obtained on demand.

Kosher and Kosher for Passover

This product is Kosher certified.

Contact Details

For Regulatory content questions, please contact the Regulatory Affairs team on the e-mail address sds@buckman.com

For questions about the materials of construction, please contact the Field Equipment Team EMEA on the e-mail address FieldEquipmentDep_EMEA@buckman.com.

Date of printing	13/05/2016
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Version	6
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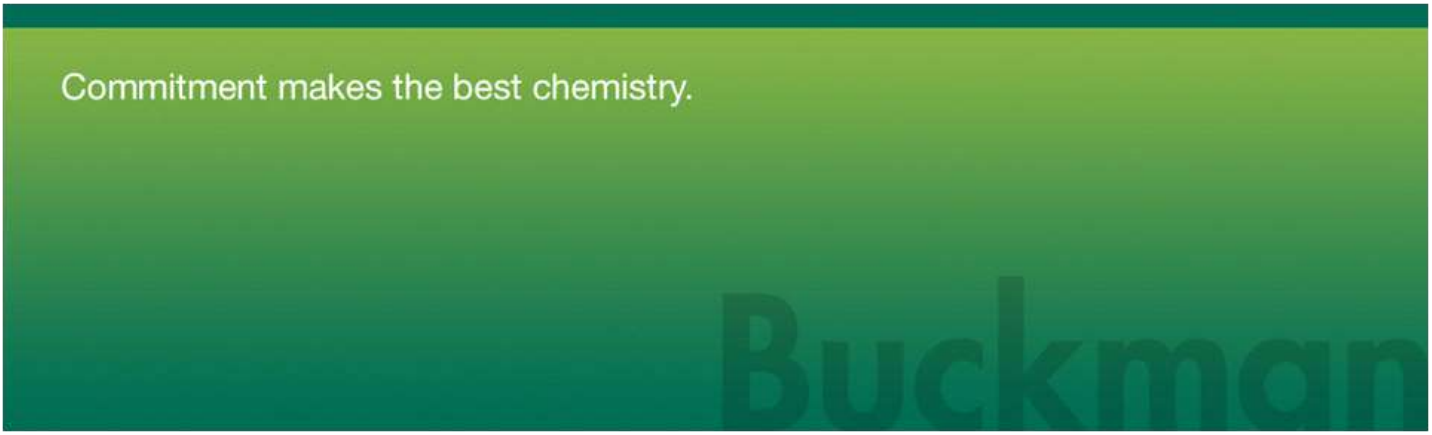
Bulab 9044



Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Commission Regulation (EU) 2015/830 - United Kingdom (UK)

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1 Product identifier

Product name	**Bulab 9044**
Physical state	Liquid.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Industry:	Water treatment
Product use:	Water-boiler treatment.

1.3 Details of the supplier of the safety data sheet

Manufacturer	**n.v. Buckman Laboratories .** Wondelgemkaai 159 9000 Gent - **BELGIUM** 0032 (0)9 257 92 11
Distributor	**Buckman Laboratories Ltd.** Lancashire Gate - 21 Tiviot Dale Stockport - Cheshire SK1 1TD - **UK** 0032 (0)9 257 92 11
e-mail address of person responsible for this SDS	sds@buckman.com

1.4 Emergency telephone number

Supplier

Telephone number	0032 (0)9 257 93 00
Hours of operation	24/7

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Eye Irrit. 2, H319

Classification according to Directive 1999/45/EC [DPD]

Xi; R36

See Section 16 for the full text of the R phrases or H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms

Signal word Warning

Hazard statements H319 - Causes serious eye irritation.

Precautionary statements

General Not applicable.

Prevention P280 - Wear eye or face protection: Recommended: face shield. safety glasses with side-shields..
P264 - Wash hands thoroughly after handling.

Response P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage Not applicable.

Disposal Not applicable.

Supplemental label elements Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Special packaging requirements

Containers to be fitted with child-resistant fastenings Not applicable.

Tactile warning of danger Not applicable.

2.3 Other hazards

Other hazards which do not result in classification None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Mixture

Product/ingredient name	Identifiers	%	Classification		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
tetrapotassium pyrophosphate	REACH #: 01-2119489369-18 EC: 230-785-7 CAS: 7320-34-5	≥25 - ≤50	Xi; R36 **See Section 16 for the full text of the R-phrases declared above.**	Eye Irrit. 2, H319 **See Section 16 for the full text of the H statements declared above.**	[1]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs or vPvBs or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard
[2] Substance with a workplace exposure limit
[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
[5] Substance of equivalent concern

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention.

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion

Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders

No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact

Causes serious eye irritation.

SECTION 4: First aid measures

Inhalation	No known significant effects or critical hazards.
Skin contact	No known significant effects or critical hazards.
Ingestion	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	No specific data.
Skin contact	No specific data.
Ingestion	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous combustion products	Decomposition products may include the following materials: phosphorus oxides metal oxide/oxides

5.3 Advice for firefighters

Special precautions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

SECTION 6: Accidental release measures

6.2 Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

6.3 Methods and material for containment and cleaning up

Spill

Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

Recommendations

Not available.

Industrial sector specific solutions

Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Recommended monitoring procedures : Not applicable.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

SECTION 8: Exposure controls/personal protection

8.2 Exposure controls

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles. Recommended: face shield. safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. 1 - 4 hours (breakthrough time): Recommended: Chemical-resistant gloves. (butyl rubber, neoprene, polyvinyl chloride (PVC), nitrile)

Body protection : Wear suitable protective clothing, gloves and eye/face protection. Recommended: Wear protective helmet with brim. Wear work clothing with long sleeves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: Wear rubber boots.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	Liquid. [Clear, colourless liquid]
Colour	Not available.
Odour	Not available.
Odour threshold	Not available.
pH	10.4
Melting point/freezing point	-5°C
Initial boiling point and boiling range	100°C
Flash point	Closed cup: >100°C
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.

SECTION 9: Physical and chemical properties

Burning time	Not applicable.
Burning rate	Not applicable.
Upper/lower flammability or explosive limits	Not applicable.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	Not available.
Density	1.27 to 1.29 g/cm³ [25°C (77°F)]
Solubility(ies)	Not available.
Solubility in water	Not available.
Partition coefficient: n-octanol/ water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Dynamic (room temperature): 0 to 10 mPa·s
Explosive properties	Not available.
Oxidising properties	Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity — No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability — The product is stable.

10.3 Possibility of hazardous reactions — Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid — No specific data.

10.5 Incompatible materials — No specific data.

10.6 Hazardous decomposition products — Under normal conditions of storage and use, hazardous decomposition products should not be produced. Hazardous combustion products : See Section 5.2 of the safety data sheet.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
tetrapotassium pyrophosphate	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	2440 mg/kg	-

Conclusion/Summary Not available.

Irritation/Corrosion

SECTION 11: Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
tetrapotassium pyrophosphate	Skin - Primary dermal irritation index (PDII)	Rabbit	0	4 hours	72 hours
	Skin - Primary dermal irritation index (PDII)	Rabbit	0.83	24 hours	72 hours

Conclusion/Summary Not available.

Sensitiser

Product/ingredient name	Route of exposure	Species	Result
tetrapotassium pyrophosphate	skin	Mouse	Not sensitizing

Conclusion/Summary Not available.

Mutagenicity

Conclusion/Summary Not available.

Carcinogenicity

Conclusion/Summary Not available.

Reproductive toxicity

Test description

Conclusion/Summary Not available.

Developmental toxicity

Product/ingredient name	Result	Species	Dose	Exposure	Test description
tetrapotassium pyrophosphate	Negative - Oral	Rabbit	>128 mg/kg	13 days	-

Conclusion/Summary Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure Not available.

Potential acute health effects

Inhalation No known significant effects or critical hazards.

Ingestion No known significant effects or critical hazards.

Skin contact No known significant effects or critical hazards.

Eye contact Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation No specific data.

Ingestion No specific data.

Skin contact No specific data.

Eye contact Adverse symptoms may include the following:
pain or irritation
watering
redness

SECTION 11: Toxicological information

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Long term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Potential chronic health effects

Not available.

Conclusion/Summary	Not available.
General	No known significant effects or critical hazards.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.
Other information	Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
tetrapotassium pyrophosphate	Acute LC50 >100 mg/l	Algae	72 hours
	Acute LC50 >100 mg/l	Daphnia	48 hours
	Acute LC50 >100 mg/l	Fish - Oncorhynchus mykiss	96 hours

Conclusion/Summary Not available.

12.2 Persistence and degradability

Conclusion/Summary Not available.

12.3 Bioaccumulative potential

Not available.

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC})	Not available.
Mobility	Not available.

12.5 Results of PBT and vPvB assessment

PBT	Not applicable.
vPvB	Not applicable.

12.6 Other adverse effects No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste The classification of the product may meet the criteria for a hazardous waste.

Packaging

Methods of disposal The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

This preparation is not classified as dangerous according to international transport regulations (ADR/RID, IMDG or ICAO/IATA).

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Other EU regulations

Biocidal products regulation

Not applicable.

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

15.2 Chemical safety assessment Not applicable.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms

ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Eye Irrit. 2, H319	Calculation method

Full text of abbreviated H statements	H319	Causes serious eye irritation.
Full text of classifications [CLP/GHS]	Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
Full text of abbreviated R phrases	R36- Irritating to eyes.	
Full text of classifications [DSD/DPD]	Xi - Irritant	
Date of printing	13/05/2016	
Date of issue/ Date of revision	10/05/2016	
Date of previous issue	10/11/2015	
Version	3	

This version supersedes any version issued before this date.

Notice to reader

The information in this SDS is provided in good faith and to the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information relied upon to compile this SDS. This SDS relates only to the specific material designated herein and is not valid for use of the material in combination with any other material or outside the applications described herein.
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EUROPE
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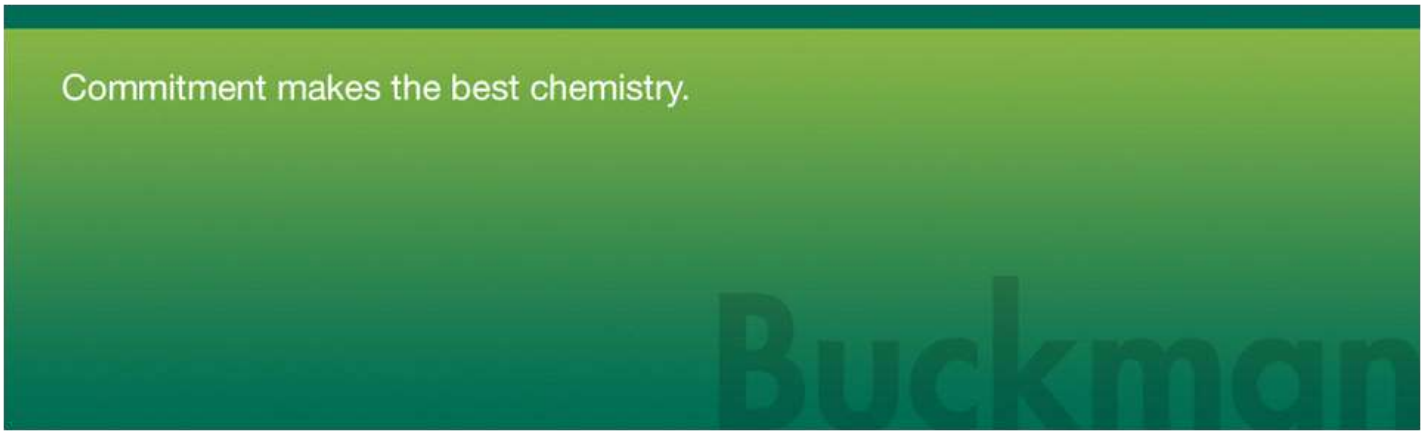
N.AFRICA

Bulab 9044



REGULATORY FACT SHEET

Food Contact

FDA - US Food And Drug Administration. CFR - Code of Federal Regulations Title 21 (version April 2015):

The product is compliant with the following chapters:

§ 173.310 - Boiler water additives.
§ 173.315 - Chemicals used in washing or to assist in the peeling of fruits and vegetables.
§ 176.170 - Components of paper and paperboard in contact with aqueous and fatty foods.
§ 176.180 - Components of paper and paperboard in contact with dry food.
§ 182.6789 - Tetra sodium pyrophosphate.

BfR Recommendations on Food Contact Materials (Version July 2015):

The product is compliant with the following chapters:

XXXVI: Paper and board for food contact.

Ecolabel

Nordic Swan

The product is compliant with Nordic Ecolabelling of Paper Products - Chemical Module Version 2.3
The product is compliant with Nordic Ecolabelling of Tissue Paper Version 5.4

REACH

This product and all of its ingredient are compliant with REACH.
The Buckman's REACH position paper and SVHC statement can be obtained on demand.

Kosher and Kosher for Passover

This product is Kosher certified.

Contact Details

For Regulatory content questions, please contact the Regulatory Affairs team on the e-mail address sds@buckman.com

For questions about the materials of construction, please contact the Field Equipment Team EMEA on the e-mail address FieldEquipmentDep_EMEA@buckman.com.

Date of printing	13/05/2016
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Version	3
Validated by	Regulatory Affairs Team and Field Equipment Team of Buckman EMEA.

This document can be considered as an official statement
This version supersedes any version issued before this date.

Notice to reader

The information in this document is provided in good faith and, to the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information relied upon to compile this document.
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No warranty with regard to the properties of the material is hereby expressed or implied. Final determination of suitability for purpose of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

EWS S10

Compilation date: 13/04/2016

Revision No: 1

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: EWS S10

CAS number: 7631-90-5

EINECS number: 231-548-0

Index number: 016-064-00-8

Synonyms: SODIUM HYDROGENSULPHITE...100%

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of substance / mixture: Boiler water treatment.

1.3. Details of the supplier of the safety data sheet

Company name: Future Water Ltd
The Pattern House
Milford Bridge
Milford
Derbyshire
DE56 0RR

Tel: 01332 841122

Fax: 01332 841155

Email: office@futurewaterltd.co.uk

1.4. Emergency telephone number

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: Acute Tox. 4: H302; Skin Irrit. 2: H315; Eye Dam. 1: H318; STOT SE 3: H335; -: EUH031

Classification under CHIP: Xn: R22; -: R31; Xi: R36/37/38

Most important adverse effects: Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause respiratory irritation. Contact with acids liberates toxic gas.

2.2. Label elements

Label elements under CLP:

Hazard statements: H302: Harmful if swallowed.
H315: Causes skin irritation.
H318: Causes serious eye damage.
H335: May cause respiratory irritation.
EUH031: Contact with acids liberates toxic gas.

Signal words: Warning

[cont...]

Hazard pictograms: GHS07: Exclamation mark

Precautionary statements: P352: Wash with plenty of soap and water.

P270: Do not eat, drink or smoke when using this product.

P301+310: IF SWALLOWED: Immediately call a POISON CENTER or doctor.

P330: Rinse mouth.

P501: Dispose of contents/container to an approved waste facility.

2.3. Other hazards

PBT: This product is not identified as a PBT substance.

Section 3: Composition/information on ingredients

3.2. Mixtures

Hazardous ingredients:

SODIUM BISULPHITE - REACH registered number(s): 01-2119524563-42-XXXX

EINECS	CAS	CHIP Classification	CLP Classification	Percent
231-548-0	7631-90-5	-	Acute Tox. 4: H302; -: EUH031	30-50%

Contains: Contains Catalysed Bisulphite Solution

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Wash immediately with plenty of soap and water.

Eye contact: Bathe the eye with running water for 15 minutes.

Ingestion: Wash out mouth with water. Do not induce vomiting. If conscious, give half a litre of water to drink immediately. Transfer to hospital as soon as possible.

Inhalation: Remove casualty from exposure ensuring one's own safety whilst doing so. Consult a doctor.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: There may be soreness and redness of the mouth and throat. There may be difficulty swallowing. Nausea and stomach pain may occur. There may be vomiting.

Inhalation: Absorption through the lungs can occur causing symptoms similar to those of ingestion.

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

4.3. Indication of any immediate medical attention and special treatment needed

Immediate / special treatment: Eye bathing equipment should be available on the premises.

[cont...]

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Suitable extinguishing media for the surrounding fire should be used. Use water spray to cool containers.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: In combustion emits toxic fumes.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Refer to section 8 of SDS for personal protection details. Mark out the contaminated area with signs and prevent access to unauthorised personnel. Turn leaking containers leak-side up to prevent the escape of liquid.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers. Contain the spillage using bunding.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Absorb into dry earth or sand. Transfer to a closable, labelled salvage container for disposal by an appropriate method.

6.4. Reference to other sections

Reference to other sections: Refer to section 8 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Avoid the formation or spread of mists in the air. Avoid direct contact with the substance.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in cool, well ventilated area. Keep container tightly closed.

7.3. Specific end use(s)

Specific end use(s): No data available.

Section 8: Exposure controls/personal protection

8.1. Control parameters

[cont...]

Hazardous ingredients:

SODIUM BISULPHITE...100%

Workplace exposure limits: **Respirable dust**

State	8 hour TWA	15 min. STEL	8 hour TWA	15 min. STEL
UK	5 mg/m3	-	-	-

8.1. DNEL/PNEC Values

DNEL / PNEC No data available.

8.2. Exposure controls

Engineering measures: Ensure there is sufficient ventilation of the area.

Respiratory protection: Respiratory protection not required.

Hand protection: Protective gloves.

Eye protection: Safety glasses. Ensure eye bath is to hand.

Skin protection: Protective clothing.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Liquid

Colour: Pale pink.

Odour: Pungent

Solubility in water: Soluble

Viscosity: Non-viscous

Flash point°C: >93 **Relative density:** 1.31

pH: 3-5

9.2. Other information

Other information: No data available.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

10.2. Chemical stability

Chemical stability: Stable under normal conditions. Store product above 7°C to prevent crystallisation.

Storage at elevated temperatures will cause loss of product strength.

10.3. Possibility of hazardous reactions

Hazardous reactions: Hazardous reactions will not occur under normal transport or storage conditions.

Decomposition may occur on exposure to conditions or materials listed below.

[cont...]

10.4. Conditions to avoid

Conditions to avoid: Heat.

10.5. Incompatible materials

Materials to avoid: Strong oxidising agents. Strong acids.

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes.

Section 11: Toxicological information

11.1. Information on toxicological effects

Toxicity values:

Route	Species	Test	Value	Units
IVN	RAT	LD50	115	mg/kg
ORL	RAT	LD50	2	gm/kg

Hazardous ingredients:

SODIUM BISULPHITE...100%

IVN	RAT	LD50	115	mg/kg
ORL	RAT	LD50	2	gm/kg

Relevant effects for mixture:

Effect	Route	Basis
Acute toxicity (harmful)	ING	Hazardous: calculated
Irritation	OPT INH DRM	Hazardous: calculated

Symptoms / routes of exposure

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: There may be soreness and redness of the mouth and throat. There may be difficulty swallowing. Nausea and stomach pain may occur. There may be vomiting.

Inhalation: Absorption through the lungs can occur causing symptoms similar to those of ingestion.

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

Section 12: Ecological information

12.1. Toxicity

[cont...]

Ecotoxicity values:

Species	Test	Value	Units
FISH	96H LC50	150-220	mg/l

12.2. Persistence and degradability

Persistence and degradability: Biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential: No bioaccumulation potential.

12.4. Mobility in soil

Mobility: Readily absorbed into soil.

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT substance.

12.6. Other adverse effects

Other adverse effects: Do not allow concentrated product to enter rivers or water courses. Negligible ecotoxicity.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Disposal should be carried out by licenced contractors. Transfer to a suitable container and arrange for collection by specialised disposal company. Do not allow entry to drains or waterways.

Disposal of packaging: Containers must be disposed of in a safe way.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

14.1. UN number

UN number: UN2693

14.2. UN proper shipping name

Shipping name: BISULPHITES, AQUEOUS SOLUTION, N.O.S.
(SODIUM BISULPHITE...100%)

14.3. Transport hazard class(es)

Transport class: 8

14.4. Packing group

Packing group: III

14.5. Environmental hazards

Environmentally hazardous: No **Marine pollutant:** No

[cont...]

14.6. Special precautions for user

Special precautions: No special precautions.

Tunnel code: E

Transport category: 3

Section 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.2. Chemical Safety Assessment

Chemical safety assessment: A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

* indicates text in the SDS which has changed since the last revision.

Phrases used in s.2 and 3: EUH031: Contact with acids liberates toxic gas.

H302: Harmful if swallowed.

H315: Causes skin irritation.

H318: Causes serious eye damage.

H335: May cause respiratory irritation.

R22: Harmful if swallowed.

R31: Contact with acids liberates toxic gas.

R36/37/38: Irritating to eyes, respiratory system and skin.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

SAFETY DATA SHEET

EWS S22

Compilation date: 13/04/2016

Revision No: 1

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: EWS S22

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of substance / mixture: Boiler water treatment.

1.3. Details of the supplier of the safety data sheet

Company name: Future Water Ltd
The Pattern House
Milford Bridge
Milford
Derbyshire
DE56 0RR
Tel: 01332 841122
Fax: 01332 841155
Email: office@futurewaterltd.co.uk

1.4. Emergency telephone number

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: This product has no classification under CLP.

2.2. Label elements

Label elements under CLP:

Precautionary statements: P262: Do not get in eyes, on skin, or on clothing.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

2.3. Other hazards

PBT: This product is not identified as a PBT substance.

Section 3: Composition/information on ingredients

3.2. Mixtures

Hazardous ingredients:

[cont...]

SODIUM HEXAMETAPHOSPHATE - REACH registered number(s): 01-2119485651-33-XXXX

EINECS	CAS	CHIP Classification	CLP Classification	Percent
233-343-1	10124-56-8	Substance with a Community workplace exposure limit.	-	10-30%

Contains: Polyphosphate and polymer blend.

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Immediately wash with soap and water.

Eye contact: Bathe the eye with running water for 15 minutes.

Ingestion: Do not induce vomiting. If conscious, give half a litre of water to drink immediately. Transfer to hospital as soon as possible.

Inhalation: If unconscious, check for breathing and apply artificial respiration if necessary. Transfer to hospital as soon as possible.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: There may be difficulty swallowing.

Inhalation: Liquid product, Inhalation unlikely.

4.3. Indication of any immediate medical attention and special treatment needed

Immediate / special treatment: Not applicable.

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Use media suitable for the surrounding fire.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: In combustion emits toxic fumes.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Turn leaking containers leak-side up to prevent the escape of liquid. Mark out the contaminated area with signs and prevent access to unauthorised personnel.

6.2. Environmental precautions

Environmental precautions: Contain the spillage using bunding. Sweep into suitable containers for recovery or disposal. Avoid creating a dust.

[cont...]

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Absorb into dry earth or sand. Wash the spillage site with large amounts of water.

6.4. Reference to other sections

Reference to other sections: Refer to section 8 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Keep container tightly closed.

Suitable packaging: Polyethylene.

7.3. Specific end use(s)

Specific end use(s): No data available.

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits: No data available.

8.1. DNEL/PNEC Values

DNEL / PNEC No data available.

8.2. Exposure controls

Engineering measures: Ensure there is sufficient ventilation of the area.

Hand protection: Protective gloves.

Eye protection: Safety glasses.

Skin protection: Protective clothing.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Liquid

Colour: Colourless

Odour: Odourless

Solubility in water: Soluble

Viscosity: Non-viscous

Relative density: 1.16-1.19 **pH:** 7 - 8

9.2. Other information

Other information: No data available.

Section 10: Stability and reactivity

[cont...]

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions: Hazardous reactions will not occur under normal transport or storage conditions.

Decomposition may occur on exposure to conditions or materials listed below.

10.4. Conditions to avoid

10.5. Incompatible materials

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes.

Section 11: Toxicological information

11.1. Information on toxicological effects

Hazardous ingredients:

SODIUM HEXAMETAPHOSPHATE

ORAL	RAT	LD50	>2000	mg/kg

Toxicity values: No data available.

Symptoms / routes of exposure

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: There may be difficulty swallowing.

Inhalation: Liquid product, Inhalation unlikely.

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values: No data available.

12.2. Persistence and degradability

Persistence and degradability: Biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential: Bioconcentration factor (BCF) 81.00 , Exposure 46 days EPA-FIFRA method.

12.4. Mobility in soil

Mobility: Soluble in water.

[cont...]

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT substance.

12.6. Other adverse effects

Other adverse effects: Do not allow concentrated product to enter rivers or water courses.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Disposal should be carried out by licenced contractors. Transfer to a suitable container and arrange for collection by specialised disposal company. Do not allow entry to drains or waterways.

Disposal of packaging: Containers must be disposed of in a safe way.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

Transport class: This product does not require a classification for transport.

Section 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.2. Chemical Safety Assessment

Chemical safety assessment: A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

* indicates text in the SDS which has changed since the last revision.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

SAFETY DATA SHEET

EWS S456N

Compilation date: 13/04/2016

Revision No: 1

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: EWS S456N

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of substance / mixture: Boiler water treatment.

1.3. Details of the supplier of the safety data sheet

Company name: Future Water Ltd
The Pattern House
Milford Bridge
Milford
Derbyshire
DE56 0RR
Tel: 01332 841122
Fax: 01332 841155
Email: office@futurewaterltd.co.uk

1.4. Emergency telephone number

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: This product has no classification under CLP.

2.2. Label elements

Label elements under CLP:

Precautionary statements: P262: Do not get in eyes, on skin, or on clothing.
P282: Wear cold insulating gloves/face shield/eye protection.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303+361+353: IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water/shower.
P301+330+331: IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

2.3. Other hazards

PBT: This product is not identified as a PBT substance.

Section 3: Composition/information on ingredients

[cont...]

3.2. Mixtures

Hazardous ingredients:

NEUTRALISED PHOSPHONO-CARBOXYLIC ACIDS

EINECS	CAS	CHIP Classification	CLP Classification	Percent
267-956-0	67953-76-8	-	Acute Tox. 4: H302; Eye Dam. 1: H318	1-10%

SODIUM NITRITE - REACH registered number(s): 01-2119471836-XXXX

231-555-9	7632-00-0	-	Ox. Sol. 3: H272; Acute Tox. 3: H301; Aquatic Acute 1: H400	0.1-1%

Contains: A blend of co-polymers and polyacrylates.

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Remove all contaminated clothes and footwear immediately unless stuck to skin. Drench the affected skin with running water for 10 minutes or longer if substance is still on skin. Transfer to hospital if there are burns or symptoms of poisoning.

Eye contact: Bathe the eye with running water for 15 minutes. Transfer to hospital for specialist examination.

Ingestion: Do not induce vomiting. If conscious, give half a litre of water to drink immediately. If unconscious, check for breathing and apply artificial respiration if necessary. If unconscious and breathing is OK, place in the recovery position. Transfer to hospital as soon as possible.

Inhalation: Remove casualty from exposure ensuring one's own safety whilst doing so. If unconscious, check for breathing and apply artificial respiration if necessary. If unconscious and breathing is OK, place in the recovery position. If conscious, ensure the casualty sits or lies down. If breathing becomes bubbly, have the casualty sit and provide oxygen if available. Transfer to hospital as soon as possible.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact: There may be irritation and redness at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: Nausea and stomach pain may occur. There may be vomiting. There may be loss of consciousness. Convulsions may occur.

Inhalation: Exposure may cause coughing or wheezing. There may be congestion of the lungs causing severe shortness of breath. There may be loss of consciousness. Convulsions may occur.

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

4.3. Indication of any immediate medical attention and special treatment needed

Immediate / special treatment: Not applicable.

[cont...]

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Carbon dioxide. Alcohol or polymer foam. Dry chemical powder.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: In combustion emits toxic fumes.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Mark out the contaminated area with signs and prevent access to unauthorised personnel. Turn leaking containers leak-side up to prevent the escape of liquid.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers. Contain the spillage using bunding.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Absorb into dry earth or sand. Neutralise with dilute hydrochloric acid. Use industrial vacuum cleaner to remove material. Wash the spillage site with large amounts of water.

6.4. Reference to other sections

Reference to other sections: Refer to section 8 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Ensure there is sufficient ventilation of the area. Avoid direct contact with the substance.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in cool, well ventilated area. Keep container tightly closed.

7.3. Specific end use(s)

Specific end use(s): No data available.

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits: No data available.

8.1. DNEL/PNEC Values

DNEL / PNEC No data available.

[cont...]

8.2. Exposure controls

Engineering measures: Ensure there is sufficient ventilation of the area.

Respiratory protection: No specific recommendations , but respiratory protection may be required under exceptional circumstances.

Hand protection: Protective gloves.

Eye protection: Safety goggles.

Skin protection: Protective clothing.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Liquid

Colour: Colourless

Odour: Barely perceptible odour

Oxidising: Non-oxidising (by EC criteria)

Solubility in water: Soluble

Relative density: 1.103-1.150 **pH:** 9-11

9.2. Other information

Other information: No data available.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions: Hazardous reactions will not occur under normal transport or storage conditions. Decomposition may occur on exposure to conditions or materials listed below.

10.4. Conditions to avoid

10.5. Incompatible materials

10.6. Hazardous decomposition products

Section 11: Toxicological information

11.1. Information on toxicological effects

[cont...]

Hazardous ingredients:

NEUTRALISED PHOSPHONO-CARBOXYLIC ACIDS

EYE	RBT	OECD 405	irritant	-
ORL	RAT	LD50	>5000	mg/kg
SKN	RBT	OECD 404	mild irrit	-

SODIUM NITRITE

ORL	MUS	LD50	175	mg/kg
ORL	RAT	LD50	180	mg/kg
SCU	RAT	LD50	96600	µg/kg

Toxicity values: No data available.

Symptoms / routes of exposure

Skin contact: There may be irritation and redness at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: Nausea and stomach pain may occur. There may be vomiting. There may be loss of consciousness. Convulsions may occur.

Inhalation: Exposure may cause coughing or wheezing. There may be congestion of the lungs causing severe shortness of breath. There may be loss of consciousness. Convulsions may occur.

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

Section 12: Ecological information

12.1. Toxicity

Hazardous ingredients:

NEUTRALISED PHOSPHONO-CARBOXYLIC ACIDS

ALGAE	72H IC50	>100	mg/l
DAPHNIA	48H EC50	>1000	mg/l
FISH	96H LC50	>100	mg/l

12.2. Persistence and degradability

Persistence and degradability: Biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential: No bioaccumulation potential.

12.4. Mobility in soil

Mobility: Soluble in water.

[cont...]

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT substance.

12.6. Other adverse effects

Other adverse effects: Do not allow concentrated product to enter rivers or water courses. Harmful to aquatic organisms.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Disposal should be carried out by licenced contractors. Transfer to a suitable container and arrange for collection by specialised disposal company. Do not allow entry to drains or waterways. Disposal to a special waste disposal plant, in accordance with local council regulations.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

Transport class: This product does not require a classification for transport.

Section 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.2. Chemical Safety Assessment

Chemical safety assessment: A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

* indicates text in the SDS which has changed since the last revision.

Phrases used in s.2 and 3: H272: May intensify fire; oxidiser.

H301: Toxic if swallowed.

H302: Harmful if swallowed.

H318: Causes serious eye damage.

H400: Very toxic to aquatic life.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

SAFETY DATA SHEET

EWS S88

Compilation date: 13/04/2016

Revision No: 1

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: EWS S88

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of substance / mixture: Boiler water treatment.

1.3. Details of the supplier of the safety data sheet

Company name: Future Water Ltd
The Pattern House
Milford Bridge
Milford
Derbyshire
DE56 0RR
Tel: 01332 841122
Fax: 01332 841155
Email: office@futurewaterltd.co.uk

1.4. Emergency telephone number

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: Acute Tox. 4: H302; Skin Corr. 1B: H314; Acute Tox. 4: H312; Acute Tox. 4: H332

Classification under CHIP: C: R34; Xn: R20/21/22

Most important adverse effects: Harmful if swallowed. Harmful in contact with skin. Causes severe skin burns and eye damage. Harmful if inhaled.

2.2. Label elements

Label elements under CLP:

Hazard statements: H302: Harmful if swallowed.
H312: Harmful in contact with skin.
H314: Causes severe skin burns and eye damage.
H332: Harmful if inhaled.

Signal words: Danger

Hazard pictograms: GHS05: Corrosion
GHS07: Exclamation mark

[cont...]

Precautionary statements: P260: Do not breathe vapours.

P303+361+353: IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water/shower.

P262: Do not get in eyes, on skin, or on clothing.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P301+310: IF SWALLOWED: Immediately call a POISON CENTER or doctor.

P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3. Other hazards

Other hazards: In use, may form flammable / explosive vapour-air mixture.

PBT: This product is not identified as a PBT substance.

Section 3: Composition/information on ingredients

3.2. Mixtures

Hazardous ingredients:

MORPHOLINE - REACH registered number(s): 01-2119496057-30-XXXX

EINECS	CAS	CHIP Classification	CLP Classification	Percent
203-815-1	110-91-8	-	Flam. Liq. 3: H226; Acute Tox. 4: H332; Acute Tox. 4: H312; Acute Tox. 4: H302; Skin Corr. 1B: H314	10-30%

CYCLOHEXYLAMINE - REACH registered number(s): 01-2119486803-29-XXXX

203-629-0	108-91-8	-	Flam. Liq. 3: H226; Repr. 2: H361f; Acute Tox. 4: H312; Acute Tox. 4: H302; Skin Corr. 1B: H314	10-30%

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Remove all contaminated clothes and footwear immediately unless stuck to skin. Drench the affected skin with running water for 10 minutes or longer if substance is still on skin. Transfer to hospital if there are burns or symptoms of poisoning.

Eye contact: Bathe the eye with running water for 15 minutes. Transfer to hospital for specialist examination.

Ingestion: Do not induce vomiting. Give 1 cup of water to drink every 10 minutes. If unconscious, check for breathing and apply artificial respiration if necessary. If unconscious and breathing is OK, place in the recovery position. Transfer to hospital as soon as possible.

Inhalation: Remove casualty from exposure ensuring one's own safety whilst doing so. If unconscious, check for breathing and apply artificial respiration if necessary. If

[cont...]

unconscious and breathing is OK, place in the recovery position. If conscious, ensure the casualty sits or lies down. If breathing becomes bubbly, have the casualty sit and provide oxygen if available. Transfer to hospital as soon as possible.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact: Irritation or pain may occur at the site of contact. There may be redness or whiteness of the skin in the area of exposure. Blistering may occur. Severe burns may occur.

Eye contact: There may be irritation and redness. There may be severe pain. The eyes may water profusely. Corneal burns may occur.

Ingestion: There may be soreness and redness of the mouth and throat. There may be difficulty swallowing. Corrosive burns may appear around the lips. Nausea and stomach pain may occur. There may be vomiting. Blood may be vomited.

Inhalation: There may be irritation of the throat with a feeling of tightness in the chest. There may be coughing and a sore throat. There may be congestion of the lungs causing severe shortness of breath. There may be loss of consciousness.

4.3. Indication of any immediate medical attention and special treatment needed

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Carbon dioxide. Water spray.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: Corrosive. In combustion emits toxic fumes.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Refer to section 8 of SDS for personal protection details.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers. Contain the spillage using bunding.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Mix with sand or vermiculite. Transfer to a suitable container. Wash down the drain with large amounts of water.

6.4. Reference to other sections

Section 7: Handling and storage

[cont...]

7.1. Precautions for safe handling

Handling requirements: Ensure there is sufficient ventilation of the area. Avoid direct contact with the substance.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in cool, well ventilated area. Keep container tightly closed.

Suitable packaging: Must only be kept in original packaging.

7.3. Specific end use(s)

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits: **Respirable dust**

State	8 hour TWA	15 min. STEL	8 hour TWA	15 min. STEL
UK	72 mg/m3	109 mg/m3	-	-

Hazardous ingredients:

MORPHOLINE

Workplace exposure limits: **Respirable dust**

State	8 hour TWA	15 min. STEL	8 hour TWA	15 min. STEL
UK	72 mg/m3	109 mg/m3	-	-

CYCLOHEXYLAMINE

UK	41 mg/m3	-	-	-

8.1. DNEL/PNEC Values

DNEL / PNEC No data available.

8.2. Exposure controls

Engineering measures: Ensure there is sufficient ventilation of the area.

Respiratory protection: Respiratory protection with suitable filter that also fully encloses and protects the eyes.

Hand protection: Protective gloves.

Eye protection: Safety goggles. Face-shield. Ensure eye bath is to hand.

Skin protection: Protective clothing with elasticated cuffs and closed neck. Boots made of PVC. PVC apron covering the tops of the boots. Ensure safety shower is to hand.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Liquid

Colour: Pale brown

Odour: Pungent

Evaporation rate: Moderate

[cont...]

Oxidising: Non-oxidising (by EC criteria)

Solubility in water: Highly soluble

Viscosity: Non-viscous

Flash point°C: 56.5 **Relative density:** 0.90-0.95

pH: 9 - 12

9.2. Other information

Other information: No data available.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

10.2. Chemical stability

Chemical stability: Stable under normal conditions. Stable at room temperature.

10.3. Possibility of hazardous reactions

10.4. Conditions to avoid

Conditions to avoid: Heat. Hot surfaces. Sources of ignition. Flames.

10.5. Incompatible materials

Materials to avoid: Strong acids. Finely powdered metals.

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes.

Section 11: Toxicological information

11.1. Information on toxicological effects

Toxicity values:

Route	Species	Test	Value	Units
ORL	MUS	LD50	770	mg/kg
ORL	RAT	LD50	11	mg/kg
SCU	MUS	LD50	1150	mg/kg

Hazardous ingredients:

MORPHOLINE

ORL	MUS	LD50	525	mg/kg
ORL	RAT	LD50	1450	mg/kg
ORL	RAT	LDLO	1600	mg/kg

[cont...]

CYCLOHEXYLAMINE

ORL	MUS	LD50	770	mg/kg
ORL	RAT	LD50	11	mg/kg
SCU	MUS	LD50	1150	mg/kg

Relevant effects for mixture:

Effect	Route	Basis
Acute toxicity (harmful)	INH DRM ING	Hazardous: calculated
Corrosivity	OPT INH DRM	Hazardous: calculated

Symptoms / routes of exposure

Skin contact: Irritation or pain may occur at the site of contact. There may be redness or whiteness of the skin in the area of exposure. Blistering may occur. Severe burns may occur.

Eye contact: There may be irritation and redness. There may be severe pain. The eyes may water profusely. Corneal burns may occur.

Ingestion: There may be soreness and redness of the mouth and throat. There may be difficulty swallowing. Corrosive burns may appear around the lips. Nausea and stomach pain may occur. There may be vomiting. Blood may be vomited.

Inhalation: There may be irritation of the throat with a feeling of tightness in the chest. There may be coughing and a sore throat. There may be congestion of the lungs causing severe shortness of breath. There may be loss of consciousness.

Section 12: Ecological information

12.1. Toxicity

Hazardous ingredients:

CYCLOHEXYLAMINE

Daphnia magna	48H EC50	36.3	mg/l
Oryzias latipes	14 DAYS EC50	19	mg/l

12.2. Persistence and degradability

Persistence and degradability: No data available.

12.3. Bioaccumulative potential

Bioaccumulative potential: No bioaccumulation potential.

12.4. Mobility in soil

Mobility: Soluble in water.

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT substance.

[cont...]

12.6. Other adverse effects

Other adverse effects: Do not allow concentrated product to enter rivers or water courses.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Transfer to a suitable container and arrange for collection by specialised disposal company. Do not allow entry to drains or waterways.

Disposal of packaging: Dispose of in a regulated landfill site or other method for hazardous or toxic wastes.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

14.1. UN number

UN number: UN2735

14.2. UN proper shipping name

Shipping name: AMINES, LIQUID, CORROSIVE, N.O.S. (MORPHOLINE; CYCLOHEXYLAMINE)

14.3. Transport hazard class(es)

Transport class: 8

14.4. Packing group

Packing group: III

14.5. Environmental hazards

Environmentally hazardous: No **Marine pollutant:** No

14.6. Special precautions for user

Tunnel code: E

Transport category: 2

Section 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.2. Chemical Safety Assessment

Chemical safety assessment: A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

* indicates text in the SDS which has changed since the last revision.

[cont...]

Phrases used in s.2 and 3: H226: Flammable liquid and vapour.

H302: Harmful if swallowed.

H312: Harmful in contact with skin.

H314: Causes severe skin burns and eye damage.

H332: Harmful if inhaled.

H361f: Suspected of damaging fertility.

R20/21/22: Harmful by inhalation, in contact with skin and if swallowed.

R34: Causes burns.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

SAFETY DATA SHEET

EWS SH32

Compilation date: 13/04/2016

Revision No: 1

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: EWS SH32

CAS number: 1310-73-2

EINECS number: 215-185-5

Index number: 011-002-00-6

Synonyms: CAUSTIC SODA

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of substance / mixture: Boiler water treatment.

1.3. Details of the supplier of the safety data sheet

Company name: Future Water Ltd
The Pattern House
Milford Bridge
Milford
Derbyshire
DE56 0RR

Tel: 01332 841122

Fax: 01332 841155

Email: office@futurewaterltd.co.uk

1.4. Emergency telephone number

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: Skin Corr. 1A: H314

Classification under CHIP: C: R35

Most important adverse effects: Causes severe skin burns and eye damage.

2.2. Label elements

Label elements under CLP:

Hazard statements: H314: Causes severe skin burns and eye damage.

Signal words: Danger

Hazard pictograms: GHS05: Corrosion

Precautionary statements: P280: Wear protective gloves/protective clothing/eye protection/face protection.

[cont...]

P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P321: Specific treatment (see information on this label).

P405: Store locked up.

P501: Dispose of contents/container to an approved waste facility.

P352: Wash with plenty of soap and water.

2.3. Other hazards

PBT: This product is not identified as a PBT substance.

Section 3: Composition/information on ingredients

3.2. Mixtures

Hazardous ingredients:

SODIUM HYDROXIDE - REACH registered number(s): 01-2119457892-27-XXXX

EINECS	CAS	CHIP Classification	CLP Classification	Percent
215-185-5	1310-73-2	-	Skin Corr. 1A: H314	30-50%

Contains: Bromo Cresol Green Sodium Salt (CAS 62625-32-5) Indicator

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Remove all contaminated clothes and footwear immediately unless stuck to skin. Drench the affected skin with running water for 10 minutes or longer if substance is still on skin. Transfer to hospital if there are burns or symptoms of poisoning.

Eye contact: Bathe the eye with running water for 15 minutes. Transfer to hospital for specialist examination.

Ingestion: Wash out mouth with water. Do not induce vomiting. Give 1 cup of water to drink every 10 minutes. If unconscious, check for breathing and apply artificial respiration if necessary. If unconscious and breathing is OK, place in the recovery position. Transfer to hospital as soon as possible.

Inhalation: Remove casualty from exposure ensuring one's own safety whilst doing so. If unconscious and breathing is OK, place in the recovery position. If conscious, ensure the casualty sits or lies down. If breathing becomes bubbly, have the casualty sit and provide oxygen if available. Transfer to hospital as soon as possible.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact: Blistering may occur. Progressive ulceration will occur if treatment is not immediate.

Eye contact: Corneal burns may occur. May cause permanent damage.

Ingestion: Corrosive burns may appear around the lips. Blood may be vomited. There may be bleeding from the mouth or nose.

Inhalation: There may be shortness of breath with a burning sensation in the throat. Exposure may cause coughing or wheezing.

[cont...]

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

4.3. Indication of any immediate medical attention and special treatment needed

Immediate / special treatment: Eye bathing equipment should be available on the premises.

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Suitable extinguishing media for the surrounding fire should be used. Use water spray to cool containers.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: Corrosive. In combustion emits toxic fumes.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Notify the police and fire brigade immediately. If outside keep bystanders upwind and away from danger point. Mark out the contaminated area with signs and prevent access to unauthorised personnel. Do not attempt to take action without suitable protective clothing - see section 8 of SDS. Turn leaking containers leak-side up to prevent the escape of liquid.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers. Contain the spillage using bunding.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Clean-up should be dealt with only by qualified personnel familiar with the specific substance. Absorb into dry earth or sand. Transfer to a closable, labelled salvage container for disposal by an appropriate method.

6.4. Reference to other sections

Reference to other sections: Refer to section 8 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Avoid direct contact with the substance. Ensure there is sufficient ventilation of the area. Do not handle in a confined space. Avoid the formation or spread of mists in the air.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in cool, well ventilated area. Keep container tightly closed.

Suitable packaging: Must only be kept in original packaging.

[cont...]

7.3. Specific end use(s)

Specific end use(s): No data available.

Section 8: Exposure controls/personal protection

8.1. Control parameters

Hazardous ingredients:

SODIUM HYDROXIDE

Workplace exposure limits: **Respirable dust**

State	8 hour TWA	15 min. STEL	8 hour TWA	15 min. STEL
UK	2 mg/m3	2 mg/m3	-	-

8.1. DNEL/PNEC Values

DNEL / PNEC No data available.

8.2. Exposure controls

Engineering measures: Ensure there is sufficient ventilation of the area.

Respiratory protection: Self-contained breathing apparatus must be available in case of emergency.

Hand protection: Impermeable gloves.

Eye protection: Tightly fitting safety goggles. Ensure eye bath is to hand.

Skin protection: Impermeable protective clothing.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Liquid

Colour: Colourless

Odour: Odourless

Oxidising: Non-oxidising (by EC criteria)

Solubility in water: Highly soluble

Viscosity: Non-viscous

Boiling point/range°C: 100 **Flash point°C:** >93

Relative density: 1.32-1.35 **pH:** 13-14

9.2. Other information

Other information: No data available.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

[cont...]

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions: Hazardous reactions will not occur under normal transport or storage conditions.

Decomposition may occur on exposure to conditions or materials listed below.

10.4. Conditions to avoid

Conditions to avoid: Heat.

10.5. Incompatible materials

Materials to avoid: Strong oxidising agents. Strong acids.

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes.

Section 11: Toxicological information

11.1. Information on toxicological effects

Toxicity values:

Route	Species	Test	Value	Units
IPR	MUS	LD50	40	mg/kg
ORL	RBT	LDLO	500	mg/kg

Hazardous ingredients:

SODIUM HYDROXIDE

IPR	MUS	LD50	40	mg/kg
ORL	RBT	LDLO	500	mg/kg

Relevant effects for mixture:

Effect	Route	Basis
Corrosivity	OPT INH DRM	Hazardous: calculated

Symptoms / routes of exposure

Skin contact: Blistering may occur. Progressive ulceration will occur if treatment is not immediate.

Eye contact: Corneal burns may occur. May cause permanent damage.

Ingestion: Corrosive burns may appear around the lips. Blood may be vomited. There may be bleeding from the mouth or nose.

Inhalation: There may be shortness of breath with a burning sensation in the throat. Exposure may cause coughing or wheezing.

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

[cont...]

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values:

Species	Test	Value	Units
Fish	96H LC50	4	mg/l

Hazardous ingredients:

SODIUM HYDROXIDE

Fish	96H LC50	4	mg/l

12.2. Persistence and degradability

Persistence and degradability: Biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential: No bioaccumulation potential.

12.4. Mobility in soil

Mobility: Readily absorbed into soil.

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT substance.

12.6. Other adverse effects

Other adverse effects: Negligible ecotoxicity.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Transfer to a suitable container and arrange for collection by specialised disposal company. Do not allow entry to drains or waterways.

Disposal of packaging: Arrange for collection by specialised disposal company.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

14.1. UN number

UN number: UN1824

14.2. UN proper shipping name

Shipping name: SODIUM HYDROXIDE SOLUTION

[cont...]

14.3. Transport hazard class(es)

Transport class: 8

14.4. Packing group

Packing group: II

14.5. Environmental hazards

Environmentally hazardous: No **Marine pollutant:** No

14.6. Special precautions for user

Special precautions: No special precautions.

Tunnel code: E

Transport category: 3

Section 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.2. Chemical Safety Assessment

Chemical safety assessment: A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

* indicates text in the SDS which has changed since the last revision.

Phrases used in s.2 and 3: H314: Causes severe skin burns and eye damage.

R35: Causes severe burns.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

Conforms to EU Regulation 1907/2006/EC as amended. - SDSGHS_GB

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : Kymene™ LHP20
Wet-Strength Resin
™ Trademark, Solenis or its subsidiaries or affiliates, registered in various countries

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture : Production aid for use in the pulp & paper industry

1.3 Details of the supplier of the safety data sheet	**1.4 Emergency telephone number**
Solenis Fascinatio Boulevard 522 2909 VA CAPELLE A/D IJSSEL Netherlands EHSProductSafetyTeam@solenis.com	00 800-7653-6471 , or contact your local emergency telephone number at 112 **Product Information** Contact your local Solenis representative

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Chronic aquatic toxicity, Category 3	H412: Harmful to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard statements	:	H412	Harmful to aquatic life with long lasting effects.
Precautionary statements	:	**Prevention:**	
		P273	Avoid release to the environment.
		Disposal:	
		P501	Dispose of contents/ container to an approved waste disposal plant.

Additional Labelling:

EUH208 Contains mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no.247- 500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1); mix. May produce an allergic reaction.

2.3 Other hazards

Additional advice
No information available.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

Chemical name	CAS-No. EC-No. Registration number	Classification (REGULATION (EC) No 1272/2008)	Concentration (%)
HEXANEDIOIC ACID, POLYMER WITH N1-(2-AMINOETHYL)-1,2-ETHANEDIAMINE AND 2-(CHLOROMETHYL)OXIRANE	25212-19-5	Aquatic Chronic2; H411	>= 15 - < 25
bronopol (INN); 2-bromo-2-nitropropane-1,3-diol	52-51-7 200-143-0 01-2119980938-15-xxxx	Acute Tox.4; H302 Acute Tox.4; H312 Skin Irrit.2; H315 Eye Dam.1; H318 STOT SE3; H335 Aquatic Acute1; H400 Aquatic Chronic2; H411	>= 0 - < 0,1
mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no.247- 500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1); mix	55965-84-9	Acute Tox.3; H301 Acute Tox.2; H310 Acute Tox.2; H330 Skin Corr.H314 Skin Sens.1; H317 Aquatic Acute1; H400 Aquatic Chronic1; H410	>= 0 - < 0,0015

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : No hazards which require special first aid measures.

If inhaled	:	If breathed in, move person into fresh air. If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.
In case of skin contact	:	First aid is not normally required. However, it is recommended that exposed areas be cleaned by washing with soap and water.
In case of eye contact	:	Remove contact lenses. Protect unharmed eye.
If swallowed	:	Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms	:	Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: stomach or intestinal upset (nausea, vomiting, diarrhea) irritation (nose, throat, airways)

4.3 Indication of any immediate medical attention and special treatment needed

Treatment	:	No hazards which require special first aid measures.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water spray Foam Carbon dioxide (CO2) Dry chemical

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	Sodium oxides sulfur oxides

5.3 Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.
Specific extinguishing methods	:	Product is compatible with standard fire-fighting agents.
Further information	:	Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Comply with all applicable federal, state, and local regulations.

6.2 Environmental precautions

Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up	:	Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling	:	Smoking, eating and drinking should be prohibited in the application area. For personal protection see section 8.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Hygiene measures	:	General industrial hygiene practice.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Containers which are opened must be carefully resealed and kept upright to prevent leakage. Electrical installations /

working materials must comply with the technological safety standards.

Advice on common storage : No materials to be especially mentioned.

Other data : No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no.247- 500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1); mix	55965-84-9	TWA	0,076 mg/m3	SUPLR EXP
		STEL	0,23 mg/m3	SUPLR EXP
Further information	5-chloro-2-methyl-2H-isothiazolin-3-one			
		TWA	1,5 mg/m3	SUPLR EXP
		STEL	4,5 mg/m3	SUPLR EXP
Further information	2-methyl-2H-isothiazolin-3-one			

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

bronopol (INN); 2-bromo-2-nitropropane-1,3-diol : End Use: Workers
Exposure routes: Inhalation
Potential health effects: Systemic, long-term
Value: 4,1 mg/m3Repeated dose toxicity
End Use: Workers
Exposure routes: Inhalation
Potential health effects: Systemic, short-term
Value: 12,3 mg/m3Acute toxicity
End Use: Workers
Exposure routes: Inhalation
Potential health effects: Local, long-term
Value: 4,2 mg/m3Skin irritation/corrosion

End Use: Workers
Exposure routes: Inhalation
Potential health effects: Local, short-term
Value: 4,2 mg/m3Acute toxicity
End Use: Workers
Exposure routes: Dermal
Potential health effects: Systemic, long-term
Value: 2,3 mg/kgRepeated dose toxicity
End Use: Workers
Exposure routes: Dermal
Potential health effects: Systemic, short-term
Value: 7 mg/kgRepeated dose toxicity
End Use: Workers
Exposure routes: Dermal
Potential health effects: Local, long-term
Value: 13 µg/cm2Repeated dose toxicity
End Use: Workers
Exposure routes: Dermal
Potential health effects: Local, short-term
Value: 13 µg/cm2Repeated dose toxicity
End Use: General population
Exposure routes: Inhalation
Potential health effects: Systemic, long-term
Value: 1,2 mg/m3Repeated dose toxicity
End Use: General population
Exposure routes: Inhalation
Potential health effects: Systemic, short-term
Value: 3,7 mg/m3
End Use: General population
Exposure routes: Inhalation
Potential health effects: Local, long-term
Value: 1,3 mg/m3Acute toxicity
End Use: General population
Exposure routes: Inhalation
Potential health effects: Local, short-term
Value: 1,3 mg/m3Acute toxicity
End Use: General population
Exposure routes: Dermal
Potential health effects: Systemic, long-term
Value: 1,4 mg/kgRepeated dose toxicity
End Use: General population
Exposure routes: Dermal
Potential health effects: Systemic, short-term
Value: 4,2 mg/kg
End Use: General population
Exposure routes: Dermal
Potential health effects: Local, long-term
Value: 8 µg/cm2Repeated dose toxicity
End Use: General population
Exposure routes: Dermal
Potential health effects: Local, short-term

Value: 8 µg/cm2Skin irritation/corrosion
End Use: General population
Exposure routes: Oral
Potential health effects: Systemic, long-term
Value: 0,35 mg/kgRepeated dose toxicity
End Use: General population
Exposure routes: Oral
Potential health effects: Systemic, short-term
Value: 1,1 mg/kgRepeated dose toxicity

8.2 Exposure controls

Engineering measures

General room ventilation should be adequate for normal conditions of use. However, if unusual operating conditions exist, provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Personal protective equipment

Eye protection	:	Not required under normal conditions of use. Wear splash-proof safety goggles if material could be misted or splashed into eyes.
Hand protection		
Remarks	:	butyl-rubber
Skin and body protection	:	Wear as appropriate: Safety shoes
Respiratory protection	:	No personal respiratory protective equipment normally required.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	liquid
Colour	:	amber
Odour	:	No data available
Odour Threshold	:	No data available
pH	:	ca. 2,4
Melting point/freezing point	:	No data available
Boiling point/boiling range	:	100 °C

Flash point	:	Not applicable
Evaporation rate	:	similar to water
Flammability (solid, gas)	:	No data available
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapour pressure	:	similar to water
Relative vapour density	:	No data available
Relative density	:	1,03 (20 °C)
Density	:	ca. 1,03 g/cm3 (20 °C)
Solubility(ies)		
Water solubility	:	No data available
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Thermal decomposition	:	No data available
Viscosity		
Viscosity, dynamic	:	60 mPa.s (25 °C)
Viscosity, kinematic	:	No data available
Oxidizing properties	:	No data available

9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if stored and applied as directed.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Product will not undergo hazardous polymerization.

10.4 Conditions to avoid

Conditions to avoid : Heat
Exposure to moisture

10.5 Incompatible materials

Materials to avoid : Alkali metals
Alkaline earth metals
aluminum
magnesium
Oxidizing agents
sodium hypochlorite
Strong acids
Strong bases

10.6 Hazardous decomposition products

Hazardous decomposition products : No hazardous decomposition products are known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Information on likely routes of exposure : Inhalation
Skin contact
Eye Contact
Ingestion

Acute toxicity

Not classified based on available information.

Components:

POLYMER:

Acute oral toxicity : LD 50 (Rat): 6.834 mg/kg

Acute inhalation toxicity : LC 50 (Rat): > 11,2 mg/l
Exposure time: 4 h

Components:

2-BROMO-2-NITRO-1,3-PROPANEDIOL:

Acute oral toxicity : LD 50 (Rat, female): 342 mg/kg

LD 50 (Rat, male): 307 mg/kg

Acute dermal toxicity : LD 50 (Rat): 1.600 mg/kg

Components:

Mixture of 5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE WITH 2-METHYL-4-ISOTHIAZOLIN-3-ONE:

Acute oral toxicity : LD 50 (Rat): 49,6 - 75 mg/kg

Acute inhalation toxicity : LC 50 (Rat): 0,33 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Remarks: Aerosol

Acute dermal toxicity : LD 50 (Rabbit): 141 mg/kg

Skin corrosion/irritation

Not classified based on available information.

Components:

POLYMER:
Result: Mildly irritating to skin

2-BROMO-2-NITRO-1,3-PROPANEDIOL:
Species: Rabbit
Method: OECD Test Guideline 404
Result: Irritating to skin

Mixture of 5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE WITH 2-METHYL-4-ISOTHIAZOLIN-3-ONE:
Species: Rabbit
Result: Corrosive to skin

Serious eye damage/eye irritation

Not classified based on available information.

Product:

Remarks: Unlikely to cause eye irritation or injury.

Components:

POLYMER:
Result: Mildly irritating to eyes

2-BROMO-2-NITRO-1,3-PROPANEDIOL:
Species: Rabbit
Method: Draize Test
Result: Corrosive to eyes

Mixture of 5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE WITH 2-METHYL-4-ISOTHIAZOLIN-3-ONE:
Species: Rabbit
Result: Corrosive to eyes

Respiratory or skin sensitisation

Skin sensitisation: Not classified based on available information.
Respiratory sensitisation: Not classified based on available information.

Components:

Mixture of 5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE WITH 2-METHYL-4-ISOTHIAZOLIN-3-ONE:
Assessment: May cause sensitization by skin contact.

Germ cell mutagenicity

Not classified based on available information.

Components:

2-BROMO-2-NITRO-1,3-PROPANEDIOL:
Genotoxicity in vitro : Test Type: Ames test
Result: negative

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

STOT - single exposure

Not classified based on available information.

Components:

2-BROMO-2-NITRO-1,3-PROPANEDIOL:
Assessment: May cause respiratory irritation.

STOT - repeated exposure

Not classified based on available information.

Aspiration hazard

Not classified based on available information.

Product:

No aspiration toxicity classification

Further information

Product:

Remarks: No data available

SECTION 12: Ecological information

12.1 Toxicity

Components:

HEXANEDIOIC ACID, POLYMER WITH N1-(2-AMINOETHYL)-1,2-ETHANEDIAMINE AND 2-(CHLOROMETHYL)OXIRANE

Toxicity to fish	:	LC 50 (Pimephales promelas (fathead minnow)): > 1 - 10 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC 50 (Water flea (Daphnia)): > 1 - 10 mg/l Exposure time: 48 h

bronopol (INN); 2-bromo-2-nitropropane-1,3-diol

Toxicity to fish	:	LC 50 (Oncorhynchus mykiss (rainbow trout)): 41,2 mg/l Exposure time: 96 h LC 50 (Bluegill (Lepomis macrochirus)): 35,7 mg/l Exposure time: 96 h Test Type: flow-through test
Toxicity to daphnia and other aquatic invertebrates	:	EC 50 (Water flea (Daphnia magna)): 1,4 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202
Toxicity to algae	:	EC 50 (Pseudokirchneriella subcapitata (green algae)): 0,37 mg/l End point: Growth inhibition Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 EC 50 (Skeletonema costatum (diatom)): 0,25 mg/l Exposure time: 72 h Test Type: static test Method: ISO 10253 NOEC (Skeletonema costatum (diatom)): 0,08 mg/l End point: Growth inhibition Exposure time: 72 h Test Type: static test Method: ISO 10253
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0,27 mg/l Exposure time: 21 d Species: Water flea (Daphnia magna) Test Type: flow-through test

Method: OECD Test Guideline 211

mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no.247- 500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1); mix

Toxicity to fish : LC 50 (Oncorhynchus mykiss (rainbow trout)): 0,19 mg/l
Exposure time: 96 h

LC 50 (Lepomis macrochirus (Bluegill sunfish)): 0,28 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC 50 (Water flea (Daphnia magna)): 0,16 mg/l
Exposure time: 48 h

Toxicity to algae : ErC50 (Pseudokirchneriella subcapitata (green algae)): 0,027 mg/l
Exposure time: 72 h

M-Factor (Acute aquatic toxicity) : 10

Toxicity to bacteria : EC 50 (activated sludge): 4,5 mg/l
Test Type: Respiration inhibition

12.2 Persistence and degradability

Components:

HEXANEDIOIC ACID, POLYMER WITH N1-(2-AMINOETHYL)-1,2-ETHANEDIAMINE AND 2-(CHLOROMETHYL)OXIRANE

Biodegradability : Result: Not readily biodegradable.

bronopol (INN); 2-bromo-2-nitropropane-1,3-diol

Biodegradability : Inoculum: activated sludge
Result: Readily biodegradable
Biodegradation: 70 - 80 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Chemical Oxygen Demand (COD) : 600 mg/g
Remarks: Chemical Oxygen Demand (COD)

mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no.247- 500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1); mix

Biodegradability : Biodegradation: 30 %
Exposure time: 28 d
Method: OECD Test Guideline 301B
Remarks: Not readily biodegradable.

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Remarks: The bioaccumulation potential cannot be determined.

Components:

bronopol (INN); 2-bromo-2-nitropropane-1,3-diol
Partition coefficient: n-octanol/water : log Pow: 0,22 (24 °C)
pH: 7

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Not relevant

12.6 Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., Harmful to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : The product should not be allowed to enter drains, water courses or the soil.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: Transport information

14.1 UN number

ADR: Not dangerous goods
ADNR: Not dangerous goods
RID: Not dangerous goods
INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods

14.2 UN proper shipping name

ADR: Not dangerous goods

ADNR: Not dangerous goods
RID: Not dangerous goods
INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods

14.3 Transport hazard class(es)

ADR: Not dangerous goods
ADNR: Not dangerous goods
RID: Not dangerous goods
INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods

14.4 Packing group

ADR: Not dangerous goods
ADNR: Not dangerous goods
RID: Not dangerous goods
INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods

14.5 Environmental hazards

ADR: Not applicable
ADNR: Not applicable
RID: Not applicable
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not applicable
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not applicable
`

14.6 Special precautions for user

Not applicable

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Ship Type: Not applicable
Hazard code(s): Not applicable
Pollutant Category: Not applicable

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 57). : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.
Not applicable

The components of this product are reported in the following inventories:

TSCA	: On the inventory, or in compliance with the inventory
DSL	All components of this product are on the Canadian DSL
AUSTR	On the inventory, or in compliance with the inventory
ENCS	On the inventory, or in compliance with the inventory
KECL	On the inventory, or in compliance with the inventory
PHIL	On the inventory, or in compliance with the inventory
IECSC	On the inventory, or in compliance with the inventory

Inventories
AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

15.2 Chemical safety assessment

No data available

SECTION 16: Other information

Further information
Revision Date: 10.06.2016

Full text of H-Statements referred to under section 3.

H301	Toxic if swallowed.
H302	Harmful if swallowed.
H310	Fatal in contact with skin.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Further information

Other information : The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by the Solenis Environmental Health and Safety Department.

Sources of key data used to compile the Safety Data Sheet
Key literature references and sources of data
SOLENIS Internal data
SOLENIS internal data including own and sponsored test reports
The UNECE administers regional agreements implementing harmonised classification for labelling (GHS) and transport.

List of abbreviations and acronyms that could be, but not necessarily are, used in this safety data sheet :

ACGIH : American Conference of Industrial Hygienists
BEI : Biological Exposure Index
CAS : Chemical Abstracts Service (Division of the American Chemical Society).
CMR : Carcinogenic, Mutagenic or Toxic for Reproduction
FG : Food grade
GHS : Globally Harmonized System of Classification and Labeling of Chemicals.
H-statement : Hazard Statement
IATA : International Air Transport Association.

IATA-DGR : Dangerous Goods Regulation by the “International Air Transport Association” (IATA).
ICAO : International Civil Aviation Organization
ICAO-TI (ICAO) : Technical Instructions by the “International Civil Aviation Organization”
IMDG : International Maritime Code for Dangerous Goods
ISO : International Organization for Standardization
logPow : octanol-water partition coefficient
LCxx : Lethal Concentration, for xx percent of test population
LDxx : Lethal Dose, for xx percent of test population.
ICxx : Inhibitory Concentration for xx of a substance
Ecxx : Effective Concentration of xx
N.O.S.: Not Otherwise Specified
OECD : Organization for Economic Co-operation and Development
OEL : Occupational Exposure Limit
P-Statement : Precautionary Statement
PBT : Persistent , Bioaccumulative and Toxic
PPE : Personal Protective Equipment
STEL : Short-term exposure limit
STOT : Specific Target Organ Toxicity
TLV : Threshold Limit Value
TWA : Time-weighted average
vPvB : Very Persistent and Very Bioaccumulative
WEL : Workplace Exposure Level

ABM : Water Hazard Class for the Netherlands
ADR : Agreement concerning the International Carriage of Dangerous Goods by Road.
ADNR: Regulation for the Carriage of Dangerous Substances on the Rhine
CLP : Classification, Labelling and Packaging
CSA : Chemical Safety Assessment
CSR : Chemical Safety Report
DNEL : Derived No Effect Level.
EINECS : European Inventory of Existing Commercial Chemical Substances.
ELINCS : European List of Notified Chemical Substances
PEC : Predicted Effect Concentration
PEL : Permissible Exposure Limits
PNEC : Predicted No Effect Concentration
REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals
RID : Regulation Concerning the International Transport of Dangerous Goods by Rail
WGK : German Water Hazard Class

SAFETY DATA SHEET

according to 1907/2006/EC, Article 31

Nutromex N&P 102

Revision 8

Revision date 2015-06-10

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name	Nutromex N&P 102

1.2. Relevant identified uses of the substance or mixture and uses advised against

Description	Nutrients for biological waste water treatment.

1.3. Details of the supplier of the safety data sheet

Company	Omex Environmental Ltd
Address	Riverside Industrial Estate Estuary Road Kings Lynn Norfolk PE30 2HH United Kingdom
Web	omex.co.uk
Telephone	+44 (0)1553 770092
Fax	+44 (0)1553 776547
Email	environmental@omex.com
Email address of the competent person	environmental@omex.com

1.4. Emergency telephone number

Emergency telephone number	+44 (0) 1553 770092 09.00 - 5.00 Mon-Fri

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Main hazards	No Significant Hazard

2.2. Label elements

Risk phrases	No Significant Hazard

2.3. Other hazards

Other hazards	None.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Nutromex N&P 102

3.2. Mixtures

EC 1272/2008

Chemical Name	Index No.	CAS No.	EC No.	REACH Registration Number	Conc. (%w/w)	Classification	M-factor.
Monoammonium Phosphate		7722-76-1	231-764-5		20 - 30%		
Urea		57-13-6	200-315-5		20 - 30%		

Description

Nutrient solution of urea and ammonium phosphates. Contains 15% nitrogen and 4.5% phosphorus.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	May cause irritation to mucous membranes. Move the exposed person to fresh air.
Eye contact	May cause irritation to eyes. Rinse immediately with plenty of water for 15 minutes holding the eyelids open. Seek medical attention if irritation or symptoms persist.
Skin contact	May cause irritation to skin. Wash off immediately with plenty of soap and water. Remove contaminated clothing. Seek medical attention if irritation or symptoms persist.
Ingestion	May cause irritation to mucous membranes. DO NOT INDUCE VOMITING. Seek medical attention if irritation or symptoms persist.

4.2. Most important symptoms and effects, both acute and delayed

Inhalation	May cause irritation to respiratory system.
Eye contact	May cause irritation to eyes.
Skin contact	May cause irritation to skin.
Ingestion	May cause irritation to mucous membranes.

4.3. Indication of any immediate medical attention and special treatment needed

Inhalation	Inhalation of vapour may cause shortness of breath. Seek medical attention if irritation or symptoms persist.
Eye contact	Rinse immediately with plenty of water.
Skin contact	No sensitizaton effects reported. Wash with soap and water.
Ingestion	May cause irritation to mucous membranes.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Use extinguishing media appropriate to the surrounding fire conditions.

5.2. Special hazards arising from the substance or mixture

Burning produces irritating, toxic and obnoxious fumes.

5.3. Advice for firefighters

Wear suitable respiratory equipment when necessary.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation of the working area.

6.2. Environmental precautions

Do not allow product to enter drains. Prevent further spillage if safe.

6.3. Methods and material for containment and cleaning up

Absorb with inert, absorbent material. Sweep up. Transfer to suitable, labelled containers for disposal. Clean spillage area thoroughly with plenty of water.

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6.4. Reference to other sections

	Wear suitable protective clothing, gloves and eye/face protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

	Avoid contact with eyes and skin. Ensure adequate ventilation of the working area. Adopt best Manual Handling considerations when handling, carrying and dispensing.

7.2. Conditions for safe storage, including any incompatibilities

	Keep in a cool, dry, well ventilated area. Keep containers tightly closed. Store in correctly labelled containers.

7.3. Specific end use(s)

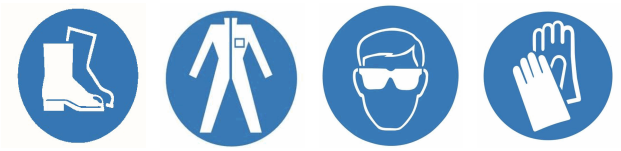
	Nutrients for biological waste water treatment.

Suitable packaging

	Plastic containers.

SECTION 8: Exposure controls/personal protection

8.2. Exposure controls

	
8.2.1. Appropriate engineering controls	Ensure adequate ventilation of the working area.
8.2.2. Individual protection measures	Wear protective clothing.
Eye / face protection	In case of splashing, wear:. Approved safety goggles.
Skin protection - Handprotection	Chemical resistant gloves (PVC).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Nutromex N&P 102

9.1. Information on basic physical and chemical properties

Appearance	Aqueous solution
Colour	Green
Odour	Slight
Odour threshold	No data available
pH	6.5 - 7.5
Melting point	> -1 °C
Initial boiling point	> 101 °C
Flash point	Not applicable.
Evaporation rate	No data available
Flammability (solid, gas)	Not applicable.
Vapour pressure	No data available
Vapour density	No data available
Relative density	1.16 - 1.2 (H2O = 1 @ 20 °C)
Partition coefficient	No data available
Autoignition temperature	Not applicable.
Viscosity	No data available
Explosive properties	Not applicable.
Oxidising properties	No data available
Solubility	Soluble in water

9.2. Other information

Conductivity	No data available
Surface tension	No data available
Specific gravity	1.16 - 1.2 g/cm³
Gas group	No data available
Benzene Content	Not relevant
Lead content	No data available
VOC (Volatile organic compounds)	No data available

Water solubility

Soluble in water.

SECTION 10: Stability and reactivity

10.1. Reactivity

Avoid contact with: Strong bases.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No data is available on this product.

10.4. Conditions to avoid

Burning produces obnoxious and irritating fumes.

10.5. Incompatible materials

Strong bases.

10.6. Hazardous decomposition products

No data is available on this product.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Nutromex N&P 102

11.1. Information on toxicological effects

Acute toxicity	No data is available on this product.
Skin corrosion/irritation	May cause irritation to skin.
Serious eye damage/irritation	May cause irritation to eyes.
Respiratory or skin sensitisation	May cause sensitisation by inhalation.
Germ cell mutagenicity	No data is available on this product.
Carcinogenicity	No data is available on this product.
Reproductive toxicity	No data is available on this product.
STOT-single exposure	No data is available on this product.
STOT-repeated exposure	No data is available on this product.

11.1.2. Mixtures

No data is available on this product.

11.1.3. Hazard Information

No Significant Hazard.

11.1.4. Toxicological Information

Not determined

SECTION 12: Ecological information

12.1. Toxicity

Not determined

No data is available on this product.

12.2. Persistence and degradability

Readily biodegradable.

12.3. Bioaccumulative potential

No data is available on this product.

Partition coefficient

Nutromex N&P 102 No data available

12.4. Mobility in soil

Miscible in water.

12.5. Results of PBT and vPvB assessment

Caution - substance not yet fully tested.

12.6. Other adverse effects

May cause long-term adverse effects in the aquatic environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Dispose of in compliance with all local and national regulations.

General information

Dispose of in compliance with all local and national regulations.

Disposal methods

Do not empty into drains; dispose of this material and its container in a safe way.

Disposal of packaging

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Disposal of packaging	
	Do NOT reuse empty containers. Empty containers can be sent for disposal or recycling.

SECTION 14: Transport information

14.1. UN number	
	The product is not classified as dangerous for carriage.

14.2. UN proper shipping name	
	The product is not classified as dangerous for carriage.

14.3. Transport hazard class(es)	
	The product is not classified as dangerous for carriage.

14.4. Packing group	
	The product is not classified as dangerous for carriage.

14.5. Environmental hazards	
	The product is not classified as dangerous for carriage.

14.6. Special precautions for user	
	The product is not classified as dangerous for carriage.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	
	The product is not classified as dangerous for carriage.

Further information	
	The product is not classified as dangerous for carriage.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture	
Regulations	REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC. COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

15.2. Chemical safety assessment	
	No data is available on this product.

SECTION 16: Other information

Other information	
Revision	This document differs from the previous version in the following areas:. 9 - 9.2. Other information (Benzene Content).

Further information	
	The information supplied in this Safety Data Sheet is designed only as guidance for the safe use, storage and handling of the product. This information is correct to the best of our knowledge and belief at the date of publication however no guarantee is made to its accuracy. This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name or designation of the mixture	PLUSpac 500
Registration number	Mixture
Synonyms	None.
Issue date	12-January-2011
Version number	03
Revision date	02-October-2014
Supersedes date	10-September-2012

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Waste water treatment.
Uses advised against	None known.

1.3. Details of the supplier of the safety data sheet

Company

Address	FERALCO UK Ltd Ditton Road Widnes WA8 0PH Cheshire United Kingdom
Telephone	+44 (0) 151 802 2940
Fax	+44 (0) 151 802 2999
e-mail	info@feralco.com
Contact person	Andrew Campbell
Website	www.feralco.com

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1.4 Emergency telephone number	+44 (0) 1865 407333

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Directive 67/548/EEC or 1999/45/EC as amended

Classification	Xi;R41

The full text for all R-phrases is displayed in section 16.

Classification according to Regulation (EC) No 1272/2008 as amended

Physical hazards		
Corrosive to metals	Category 1	H290 - May be corrosive to metals.
Health hazards		
Serious eye damage/eye irritation	Category 1	H318 - Causes serious eye damage.

Hazard summary

Physical hazards	Not classified for physical hazards.
Health hazards	Risk of serious damage to eyes. Occupational exposure to the substance or mixture may cause adverse health effects.
Environmental hazards	Not classified for hazards to the environment.
Specific hazards	None known.

Main symptoms Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause temporary blindness and severe eye damage. Severe eye irritation.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: Aluminium chloride, basic

Hazard pictograms

Signal word Danger

Hazard statements

H290 May be corrosive to metals.
H318 Causes serious eye damage.

Precautionary statements

Prevention

P234 Keep only in original container.
P280 Wear eye/face protection.

Response

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P390 Absorb spillage to prevent material damage.

Storage

P406 Store in corrosive resistant container with a resistant inner liner.

Disposal Not required

Supplemental label information None.

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Aluminium chloride, basic	20 - < 30	1327-41-9 215-477-2	01-2119531563-43-xxxx	-	

Classification: **DSD:** Xi;R41

CLP: Met. Corr. 1;H290, Eye Dam. 1;H318

CLP: Regulation No. 1272/2008.
DSD: Directive 67/548/EEC.
#: This substance has workplace exposure limit(s).

Composition comments The full text for all R- and H-phrases is displayed in section 16.

SECTION 4: First aid measures

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

4.1. Description of first aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Rinse skin with water/shower. Get medical attention if irritation develops and persists.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or Poison Control Centre immediately.

Ingestion Rinse mouth. If ingestion of a large amount does occur, call a poison control centre immediately.

4.2. Most important symptoms and effects, both acute and delayed	May cause temporary blindness and severe eye damage. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
4.3. Indication of any immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

SECTION 5: Firefighting measures

General fire hazards	Non-combustible, substance itself does not burn.
5.1. Extinguishing media	
Suitable extinguishing media	Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
5.2. Special hazards arising from the substance or mixture	The product itself does not burn. No unusual fire or explosion hazards noted. In the event of fire hydrogen chloride may be formed.
5.3. Advice for firefighters	
Special protective equipment for firefighters	Wear self-contained breathing apparatus and protective clothing.
Special fire fighting procedures	Cool containers exposed to heat with water spray and remove container, if no risk is involved. No unusual fire or explosion hazards noted. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe vapour. Do not touch or walk through spilled material. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8.
For emergency responders	Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS. Not available.
6.2. Environmental precautions	Avoid discharge into drains, water courses or onto the ground. Prevent further leakage or spillage. Do not flush into surface water or sanitary sewer system.
6.3. Methods and material for containment and cleaning up	Stop the flow of material, if this is without risk. Absorb spillage to prevent material damage. Large Spills: Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
6.4. Reference to other sections	For personal protection, see section 8. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling	Do not breathe vapour. Do not get this material in contact with eyes. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.
7.2. Conditions for safe storage, including any incompatibilities	Keep at temperatures between 0 and 30°C. Store in a cool, dry place out of direct sunlight. Keep only in the original container. Keep container tightly closed. Store in corrosive resistant container with a resistant inner liner. Store away from incompatible materials (see Section 10 of the SDS).
7.3. Specific end use(s)	Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Components	Type	Value	Form
Aluminium chloride, basic (1327-41-9)	TWA	2 mg/m3	soluble aluminium salts

Biological limit values No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no-effect level (DNEL)

Components	Type	Route	Value	Form
Aluminium chloride, basic (CAS 1327-41-9)	Consumer	Oral	3.4 mg/kg bw/day	Long term Systemic effects
	Industry	Inhalation	20.2 mg/m3	Long term Systemic effects

Predicted no effect concentrations (PNECs)

Components	Type	Route	Value	Form
Aluminium chloride, basic (CAS 1327-41-9)	Not applicable	STP	20 mg/l	
		Water	0.3 ug/l	freshwater
		Water	0.03 ug/l	marine water

8.2. Exposure controls

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.

Individual protection measures, such as personal protective equipment

General information Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. Eye wash fountain is recommended.

Eye/face protection Wear eye/face protection. Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection

- Hand protection Wear appropriate chemical resistant gloves. Chemical resistant gloves made of butyl rubber or nitrile rubber category III according to EN 374.

- Other Wear suitable protective clothing. Normal work clothing (long sleeved shirts and long pants) is recommended.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Thermal hazards Not applicable.

Hygiene measures Avoid contact with eyes. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Environmental exposure controls Environmental manager must be informed of all major releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance Aqueous solution.

Physical state Liquid.

Form Slightly viscous

Colour Yellow.

Odour Not significant.

Odour threshold Not applicable

pH 1.0 - 2.0

Melting point/freezing point	< 0 °C (< 32 °F)
Initial boiling point and boiling range	100 - 120 °C (212 - 248 °F)
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not applicable
Flammability limit - upper (%)	Not applicable
Vapour pressure	Not applicable
Vapour density	Not applicable
Relative density	Not available.
Solubility(ies)	
Solubility (water)	miscible
Solubility (other)	Not available.
Auto-ignition temperature	Not applicable
Decomposition temperature	Not applicable
Viscosity	Not applicable
Explosive properties	Not applicable
Oxidizing properties	Not applicable
9.2. Other information	
Density	1200.00 - 1400.00 kg/m3 @ 20 C
Percent volatile	60 % estimated

SECTION 10: Stability and reactivity

10.1. Reactivity	May be corrosive to metals.
10.2. Chemical stability	Material is stable under normal conditions.
10.3. Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
10.4. Conditions to avoid	Contact with incompatible materials. None under normal conditions. Do not expose to temperatures above 50 °C Thermal decomposition can take place above 200 °C.
10.5. Incompatible materials	Strong oxidising agents. Metals. This product may react with strong reducing agents.
10.6. Hazardous decomposition products	No dangerous reaction known under conditions of normal use. Thermal decomposition can lead to release of irritating gases and vapours. Hydrogen chloride.

SECTION 11: Toxicological information

General information Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful.
Skin contact	Not classified.
Eye contact	Causes serious eye damage.
Ingestion	Not classified.
Symptoms	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. irritation redness blurred vision May cause temporary blindness and severe eye damage.

11.1. Information on toxicological effects

Acute toxicity Not classified

Product	Species	Test results
Aluminium chloride, basic (CAS Mixture)		
Acute		
Dermal		
LD50	Rat	> 2000 mg/kg bw
Oral		
LD50	Rat	> 2000 mg/kg bw

Components	Species	Test results
Aluminium chloride, basic (CAS 1327-41-9)		
Acute		
Dermal		
LD50	Rat	>= 2000 mg/kg bw
Inhalation		
LC50	Rat	> 5 mg/l, 4 hours similar substance
Oral		
LD50	Rat	>= 2000 mg/kg bw

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Due to partial or complete lack of data the classification is not possible.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory sensitisation Due to partial or complete lack of data the classification is not possible.

Skin sensitisation Due to partial or complete lack of data the classification is not possible.

Germ cell mutagenicity Due to partial or complete lack of data the classification is not possible.

Carcinogenicity Due to partial or complete lack of data the classification is not possible.

Reproductive toxicity Due to partial or complete lack of data the classification is not possible.

Specific target organ toxicity - single exposure Due to partial or complete lack of data the classification is not possible.

Specific target organ toxicity - repeated exposure Due to partial or complete lack of data the classification is not possible.

Aspiration hazard Due to partial or complete lack of data the classification is not possible.

Mixture versus substance information No information available.

Other information Not available.

SECTION 12: Ecological information

12.1. Toxicity Not expected to be harmful to aquatic organisms.

Components		Species	Test results
Aluminium chloride, basic (CAS 1327-41-9)			
Aquatic			
Crustacea	EC50	Daphnia	77 - 126 mg/l, 48 hours semi-static
			0.212 - 1.26 mg/l (Al), 48 hours static
Fish	EC50	Danio (Danio)	>= 0.357 mg/l (Al), 96 hours semi-static
	LC10	Danio (Danio)	> 0.58 mg/l (Al), 96 hours static
	NOEC	Brook trout (Salvelinus fontinalis)	13 µg/l (Al), 60 days semi-static

* Estimates for product may be based on additional component data not shown.

12.2. Persistence and degradability The product solely consists of inorganic compounds which are not biodegradable. The methods for determining the biological degradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential No data available.

Partition coefficient n-octanol/water (log Kow)	Not available.
Bioconcentration factor (BCF)	Not available.
12.4. Mobility in soil	No data available.
12.5. Results of PBT and vPvB assessment	Not assigned.
12.6. Other adverse effects	None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.
EU waste code	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Disposal methods/information	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
Special precautions	Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. UN number	UN3264
14.2. UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (Aluminium chloride, basic)
14.3. Transport hazard class(es)	
Class	8
Subsidiary risk	-
Label(s)	8
Hazard No. (ADR)	80
Tunnel restriction code	E
14.4. Packing group	III
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

RID

14.1. UN number	UN3264
14.2. UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (Aluminium chloride, basic)
14.3. Transport hazard class(es)	
Class	8
Subsidiary risk	-
Label(s)	8
14.4. Packing group	III
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Aluminium chloride, basic

3

ADN

14.1. UN number	UN3264
14.2. UN proper shipping name	Corrosive Liquid, Inorganic, N.o.s. (Aluminium chloride, basic)
14.3. Transport hazard class(es)	
Class	8
Subsidiary risk	-

Label(s)	8
14.4. Packing group	III
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Aluminium chloride, basic

C1

IATA

14.1. UN number	UN3264
14.2. UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (Aluminium chloride, basic)
14.3. Transport hazard class(es)	
Class	8
Subsidiary risk	-
14.4. Packing group	III
14.5. Environmental hazards	No.
ERG Code	8L
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed.
Cargo aircraft only	Allowed.

IMDG

14.1. UN number	UN3264
14.2. UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (Aluminium chloride, basic)
14.3. Transport hazard class(es)	
Class	8
Subsidiary risk	-
14.4. Packing group	III
14.5. Environmental hazards	
Marine pollutant	No.
EmS	F-A, S-B
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	This substance/mixture is not intended to be transported in bulk.

ADN; ADR; IATA; IMDG; RID

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Regulation (EC) No. 2037/2000 on substances that deplete the ozone layer, Annex I

Not listed.

Regulation (EC) No. 2037/2000 on substances that deplete the ozone layer, Annex II

Not listed.

Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry

Not listed.

Regulation (EC) No. 1907/2006, Article 59(1). Candidate List

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use

Not regulated.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work

Not listed.

Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens and mutagens at work

Not regulated.

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding.

Not regulated.

Other EU regulations

Directive 96/82/EC (Seveso II) on the control of major-accident hazards involving dangerous substances

Not regulated.

Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Always applicable.

Directive 94/33/EC on the protection of young people at work

Not listed.

Other regulations

This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006. The product is classified and labelled in accordance with EC directives or respective national laws.

National regulations

Young people under 18 years old are not allowed to work with this product according to the EU Directive 94/33/EC on the protection of young people at work. Follow national regulation for work with chemical agents.

15.2. Chemical safety assessment

A chemical safety assessment has been carried out as part of the REACH registration dossier

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of New and Existing Chemicals (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

SECTION 16: Other information

List of abbreviations
Not available.

References
Not available.

Information on evaluation method leading to the classification of mixture
The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

Full text of any statements or R-phrases and H-statements under Sections 2 to 15
R41 Risk of serious damage to eyes.
H290 May be corrosive to metals.
H318 Causes serious eye damage.

Revision information
This document has undergone significant changes and should be reviewed in its entirety.

Training information
Follow training instructions when handling this material.

Disclaimer
The information in the sheet was written based on the best knowledge and experience currently available.
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