

Grays Biogas Ltd
MONA AD PLANT

Measures to Optimise use of Raw Materials
and Reduce Waste

3407-819-D Version 1.0



Oaktree Environmental Ltd

Oaktree Environmental Limited -Registered in the UK - Company No. 4850754
North West Office, Unit 5, Oasis Park, Road One, Winsford Industrial Estate Winsford, Cheshire CW7 3PP

Tel: 01606 558833

Fax: 01606 861182

E-mail: sales@oaktree-environmental.co.uk Web: www.oaktree-environmental.co.uk

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1.0	05/02/2016		For submission with variation application

Author : Jan Edwards Senior Consultant

Contributors :

Reviewed by:

Raw Materials

The table below sets out the raw materials used on site with estimates of the quantities which will be consumed on an annual basis.

Table 1: Raw materials utilised by the proposed site

Raw Material	Nature	Approximate Annual usage	Use	Hazards Environmental impact	Alternatives
Biodegradable Waste	Mixed Organic wastes and similar wastes with a suitable biodegradable content	Dairy DAF 25,000tonnes Glycerol 3,000tonnes Chicken dung 12,000tonnes	Feed stock	Non hazardous Potential impact on environment if disposed of in uncontrolled manner	Appendix * of the Management System Detail the types of waste that can be accepted
Biomass Biofuel	Typically 20,000kJ/kg dry wt	8,5000 tonnes	Feed stock	No Hazards No Impact	A wide range of fuels are suitable .
Lubricating oil	Mineral Oil Or Synthetic oil	3,200 litres 30 litres	For the CHP (First filling of coolant: 1200 litres for closed circuit without any loss glycol (35%), water 65% mix For all stirrer and mixer engines	Mild irritant Long term exposure may cause irreversible damage. Potential impact in soils and aquatic environment.	Alternative's under constant review.

<i>Gear oil</i>	<i>Mineral Oil</i>	500 litres	75% used during operation 25% sent for re-refining/recovery	Mild irritant Long term exposure may cause irreversible damage. Potential impact in soils toxic in aquatic environment.	Alternative's under constant review.
<i>Heating Oil</i>	<i>Mineral Oil</i>	5000 litres	Start up fuel for engine/s	Mild irritant Long term exposure may cause irreversible damage. Potential impact in soils toxic in aquatic environment	Alternative's under constant review.

<i>Raw Material</i>	<i>Nature</i>	<i>Approximate Annual usage</i>	<i>Use</i>	<i>Hazards Environmental impact</i>	<i>Alternatives</i>
Red Diesel	Fuel	5,000 litres 400 litres	To power the bob cats used on site For the emergency generator	Harmful: may cause lung damage if swallowed. Repeated exposure may cause skin dryness or cracking Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.	Alternative's under constant review.
Antifreeze;	Ethylene glycol		Antifreeze for engine cooling systems	Harmful if swallowed and by inhalation	Alternative's under constant review.
Methomex	Patented micronutrients	700 litres	Added into Digestors		Alternative's under constant review
ODR	Neutralising additive	tbc	For use in the feed hopper neutralising spray system	May cause an allergic skin reaction	Alternative's under constant review

Specific fuels will follow the specification of manufacturer's guidelines (site plant etc) and consideration will be given to environmental impacts when purchasing new plant and equipment for the site.

Any compounds utilised as described above will be used as recommended by specialist suppliers. Any quantities of materials used will be the minimum necessary to achieve a successful result.

A review of raw and auxiliary materials use will be carried out at least every four years to assess new developments and any possible switch to alternatives with an improved environmental profile.

Water use

The annual mains water consumption for activities at the Biogas Plant will be monitored and reported on once the system/process has been installed and has been operating consistently for a period of six months so that realistic figures are analysed. The process uses a small volume of water but every effort will be made to collect rainwater in suitable rainwater harvesting schemes so that import water is kept to a minimum.

The use of mains water for processing will be minimised at the facility as process water will be recycled where appropriate. Opportunity for further significant water efficiency is therefore limited; however, to optimise water efficiency for all uses at the site, the operator will review water use every four years in accordance with guidelines given in the Sector Guidance notes. The audit will include a breakdown of water consumption by source. Details of the water use audit will be provided to the Regulator.

Reviewing water use forms part of the management system and the programme of continuous improvement will keep opportunities to save water or exploit alternative sources under constant review.

A water collection and distribution schematic will be issued once detailed engineering has been designed.

Waste

Table 2 summarises the product/waste streams from the process and clarifies the disposal/recovery despatch routes for each waste stream. Records will be maintained of any waste sent off site.

Table 2: Recovery and Disposal Routes for Product/Waste Streams from the Site

Waste Stream/Product	Estimated Quantities (tonnes per annum)	Estimated Recovery or Disposal	Explanation of choice and details of how disposal is minimised
Non conforming waste	Unknown	Disposal	Non conforming waste will be immediately reloaded and returned to the waste producer or stored in a designated quarantine area before being sent to the appropriate recipient.
Heat	Unknown	Recovery	Reused in process. Any excess will be sold to the neighbouring industries.
Digestate	tbc	Recovery	To PAS 110 Standard therefore not a waste
Biogas	tbc	Recovery	Feed into the National Grid
Process water / leachate	tbc	Recovery	Process water and leachate to be recycled back into the system where possible. (Refer to Drainage Report for full details)

Other wastes

Other wastes generated on site are shown in the table 3 below

Table 3: Non-process wastes generated by the operation of the site.

Waste	Source	Approximate annual quantity	Storage	Location of store
Non-hazardous solid waste	Admin and messing areas	2 t	1100 l eurobin	Stores
Waste oil	Waste oil	6,000l	2000 l tank bunded	Generator house
Waste paper	Admin area	500kg	Recycling bin	In offices
Fluorescent tubes	All areas	Unknown at present	In purpose designed boxes	Stores.

It is anticipated that most biodegradable wastes generated on site that cannot be recycled in a more sustainable manner will be subject to processing through the plant.

EC Directive 2006/12EC consolidated and replaced directive 75/442EC but maintained the duty on member states to encourage the hierarchy approach to managing waste.

The exact wording of the directive is set out below.

Member States shall take appropriate measures to encourage:

(a) first, the prevention or reduction of waste production and its harmfulness, in particular by:

(i) the development of clean technologies more sparing in their use of natural resources;

(ii) the technical development and marketing of products designed so as to make no contribution or to make the smallest possible contribution, by the nature of their manufacture, use or disposal, to increasing the amount or harmfulness of waste and pollution hazards;

(iii) the development of appropriate techniques for the final disposal of dangerous substances contained in waste destined for recovery;

(b) second:

(i) the recovery of waste by means of recycling, re-use or reclamation or any other process with a view to extracting secondary raw materials; or

(ii) the use of waste as a source of energy.

The proposed installation is to be fuelled by bio-degradable wastes and biofuel.

There are very few alternative uses for mixed bio-degradable wastes and the bulk is still land filled. The proposed use as the major feedstock for this plant which is highly efficient at separating recyclable fractions and utilising the energy content of the remaining residue is clearly a combination of technologies which are higher up the waste hierarchy than the current fate of the proposed feedstock.

SAFETY DATA SHEET

according to 1907/2006/EC, Article 31

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Metomex 351

Revision 4
Revision date 2015-05-21

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

1.1. Product identifier

Product name	Metomex 351
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1.2. Relevant identified uses of the substance or mixture and uses advised against

Description	Nutrients for biogas plants.
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1.3. Details of the supplier of the safety data sheet

Company Address	Agraferm Technologies AG Färberstrasse 7 85276 Pfaffenhofen Germany
Web	www.agraferm.com
Telephone	+49 (0)8441 8086-100
Fax	+49 (0)8441 8086 190
Email	info@agraferm.com
Email address of the competent person	service@agraferm.com

1.4. Emergency telephone number

Emergency telephone number	+49 (0) 8441 8086-500
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

2.1.1. Classification - 1999/45/EC	Xn; R40 Symbols: Xn: Harmful.
Main hazards	Limited evidence of a carcinogenic effect.
2.1.2. Classification - EC 1272/2008	Skin Irrit. 2: H315; Skin Sens. 1: H317; Eye Irrit. 2: H319; Resp. Sens. 1: H334; Carc. 1A: H350; STOT RE 1: H372;

2.2. Label elements

Hazard pictograms	
Signal Word	Danger
Hazard Statement	Skin Irrit. 2: H315 - Causes skin irritation. Skin Sens. 1: H317 - May cause an allergic skin reaction. Eye Irrit. 2: H319 - Causes serious eye irritation. Resp. Sens. 1: H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled. Carc. 1A: H350 - May cause cancer .

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2.2. Label elements

Precautionary Statement: Prevention	STOT RE 1: H372 - Causes damage to organs through prolonged or repeated exposure .
	<p>P201 - Obtain special instructions before use.</p> <p>P202 - Do not handle until all safety precautions have been read and understood.</p> <p>P260 - Do not breathe dust/fume/gas/mist/vapours/spray.</p> <p>P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.</p> <p>P264 - Wash thoroughly after handling.</p> <p>P270 - Do not eat, drink or smoke when using this product.</p> <p>P272 - Contaminated work clothing should not be allowed out of the workplace.</p> <p>P280 - Wear protective gloves/protective clothing/eye protection/face protection.</p> <p>P284 - [In case of inadequate ventilation] wear respiratory protection.</p>
Precautionary Statement: Response	<p>P302+P352 - IF ON SKIN: Wash with plenty of water/ .</p> <p>P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P308+P313 - IF exposed or concerned: Get medical advice/attention.</p> <p>P314 - Get medical advice/attention if you feel unwell.</p> <p>P321 - Specific treatment (see on this label).</p> <p>P332+P313 - If skin irritation occurs: Get medical advice/attention.</p> <p>P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.</p> <p>P337+P313 - If eye irritation persists: Get medical advice/attention.</p> <p>P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTER/doctor/ .</p>
Precautionary Statement: Storage	P405 - Store locked up.
Precautionary Statement: Disposal	P501 - Dispose of contents/container to waste collection or recycling, after thorough rinsing, if in compliance with local and national regulations

2.3. Other hazards

Other hazards	Harmful if swallowed, in contact with skin or if inhaled.
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SECTION 3: Composition/information on ingredients

3.2. Mixtures

67/548/EEC / 1999/45/EC

Chemical Name	Index No.	CAS No.	EC No.	REACH Registration Number	Conc.Classification (%w/w)	M-factor.
Nickel ethylenediaminetetraacetic acid		15708-55-1			1 - 10% Xn; R20/21/22 Xi; R36/37/38	
Cobalt disodium ethylenediaminetetraacetate (Cobalt EDTA)		15137-09-4	239-198-0		1 - 10% Xn; R40 Xi; R36/38	
Sodium Molybdate		7631-95-	0231-551-7		1 - 10% Xi; R36/37/38	
Disodium octaborate tetrahydrate		12280-03-4	234-541-0		0 - 0.5% T; R60-61	
Zinc disodium ethylenediaminetetraacetate (Zinc EDTA)		14025-21-9	237-865-0		0 - 0.5%	

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3.2. Mixtures

EC 1272/2008

Chemical Name	Index No.	CAS No.	EC No.	REACH Registration Number	Conc.Classification (%w/w)	M-factor.
Nickel ethylenediaminetetraacetic acid		15708-55-1			1 - 10% Acute Tox. 4: H302; Acute Tox. 4: H312; Skin Irrit. 2: H315; Eye Irrit. 2: H319; STOT SE 3: H335;	
Cobalt disodium ethylenediaminetetraacetate (Cobalt EDTA)		15137-09-4	239-198-0		1 - 10% Skin Irrit. 2: H315; Eye Irrit. 2: H319; Carc. 2: H351;	
Sodium Molybdate		7631-95-0	231-551-7		1 - 10% Skin Irrit. 2: H315; Eye Irrit. 2: H319; STOT SE 3: H335;	
Zinc disodium ethylenediaminetetraacetate (Zinc EDTA)		14025-21-9	237-865-0		0 - 0.5%	

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Inhalation may cause coughing, tightness of the chest and irritation of the respiratory system. Move the exposed person to fresh air. Seek medical attention if irritation or symptoms persist.
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	Harmful if swallowed. DO NOT INDUCE VOMITING. May cause irritation to mucous membranes. Seek medical attention if irritation or symptoms persist.

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

Inhalation	May cause irritation to mucous membranes.
Eye contact	May cause irritation to eyes.
Skin contact	Wash off immediately with plenty of soap and water.
Ingestion	Ingestion is irritating to the respiratory tract and may cause damage to the central nervous system. May cause cancer.

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

Inhalation	Treat according to symptoms, no known specific antidote.
Eye contact	Remove the affected person from the source of contamination immediately.
Skin contact	Rinse immediately with plenty of water for 15 minutes holding the eyelids open.
Ingestion	Wash off immediately with plenty of soap and water.
	Ingestion may cause nausea and vomiting.

SECTION 5: Firefighting measures

5.1. Extinguishing media

	This product is not flammable. Use extinguishing media appropriate to the surrounding fire conditions.
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5.2. Special hazards arising from the substance or mixture

	Burning produces irritating, toxic and obnoxious fumes.
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5.3. Advice for firefighters

	Wear suitable respiratory equipment when necessary.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

	Ensure adequate ventilation of the working area. Wear suitable protective equipment.
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6.2. Environmental precautions

	Do not allow product to enter drains. Prevent further spillage if safe. Do not flush into surface water.
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6.3. Methods and material for containment and cleaning up

Collect and reuse if possible. Otherwise: Absorb with inert, absorbent material. Sweep up. Transfer to suitable, labelled containers for disposal. To clean the floor and all objects contaminated by this material, use water.

6.4. Reference to other sections

See section 2, 8, 13 for further information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Ensure adequate ventilation of the working area. Avoid contact with eyes and skin. 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. Store in correctly labelled containers. Store at temperatures between 5 °C and 20 °C.

Suitable packaging

Plastic containers.

7.3. Specific end use(s)

Nutrients for biogas plants.

Suitable packaging

Plastic containers.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1. Exposure Limit Values

Cobalt disodium ethylenediaminetetraacetate (Cobalt EDTA)	WEL 8-hr limit ppm:	WEL 8-hr limit mg/m3: 0.1
	WEL 15 min limit ppm:	WEL 15 min limit mg/m3:
	WEL 8-hr limit mg/m3 total - inhalable dust: WEL 8-hr limit mg/m3 total - respirable dust:	WEL 15 min limit mg/m3 total - inhalable dust: WEL 15 min limit mg/m3 total - respirable dust:
Sodium Molybdate	WEL 8-hr limit ppm:	WEL 8-hr limit mg/m3: 5 As Mo
	WEL 15 min limit ppm:	WEL 15 min limit mg/m3:
	WEL 8-hr limit mg/m3 total - inhalable dust: WEL 8-hr limit mg/m3 total - respirable dust:	WEL 15 min limit mg/m3 total - inhalable dust: WEL 15 min limit mg/m3 total - respirable dust:
Zinc disodium ethylenediaminetetraacetate (Zinc EDTA)	WEL 8-hr limit ppm:	WEL 8-hr limit mg/m3: 10
	WEL 15 min limit ppm:	WEL 15 min limit mg/m3: 3
	WEL 8-hr limit mg/m3 total - inhalable dust: WEL 8-hr limit mg/m3 total - respirable dust:	WEL 15 min limit mg/m3 total - inhalable dust: WEL 15 min limit mg/m3 total - respirable dust:

8.2. Exposure controls



8.2.1. Appropriate engineering controls

Ensure adequate ventilation of the working area.

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8.2. Exposure controls

8.2.2. Individual protection measures	Wear suitable protective clothing.
Eye / face protection	In case of splashing, wear: Eye protection. Approved safety goggles.
Skin protection - Handprotection	Chemical resistant gloves (PVC).
Respiratory protection	Wear suitable protective equipment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Aqueous solution
Colour	Red/Brown
Odour	Slight/Characteristic
pH	7 - 8.5
Melting point	± -1 °C
Initial boiling point	> 100 °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	1.23 - 1.27 (H ₂ O = 1 @ 20 °C)
Partition coefficient	No data available
Autoignition temperature	Not applicable.
Viscosity	No data available
Explosive properties	Not applicable.
Oxidising properties	Not applicable.
Solubility	Soluble in water

9.2. Other information

Conductivity	No data available
Surface tension	No data available
Specific gravity	1.23 - 1.27 g/cm ³
Bulk Density	Not required
Benzene Content	Not determined
Lead content	Not determined
VOC (Volatile organic compounds)	Not determined

SECTION 10: Stability and reactivity

10.1. Reactivity

	Stable under normal conditions.
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10.2. Chemical stability

	Stable under normal conditions.
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10.3. Possibility of hazardous reactions

	No data is available on this product.
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10.4. Conditions to avoid

	No data is available on this product.
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10.5. Incompatible materials

	Will not decompose if stored and used as recommended.
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10.6. Hazardous decomposition products

No data is available on this product.

SECTION 11: Toxicological information

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 and skin contact.
Germ cell mutagenicity	No data is available on this product.
Carcinogenicity	Limited evidence of a carcinogenic effect.
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

Harmful if swallowed, in contact with skin or if inhaled.

11.1.4. Toxicological Information

Cobalt disodium ethylenediaminetetraacetate	Oral Rat LD50: 6671mg/kg	
Disodium octaborate tetrahydrate	Oral Rat LD50: 2550mg/Kg	Dermal Rabbit LD50: >2000mg/Kg
	Inhalation Rat LC50/4 h: > 2.01mg/l	
Nickel ethylenediaminetetraacetic acid	Oral Mouse LD50: 1244mg/kg	
Sodium Molybdate	Oral Rat LD50: 520mg/kg	
Zinc disodium ethylenediaminetetraacetate	Inhalation Rat LC50/4 h: 2.75	Oral Rat LD50: 5000mg/kg

SECTION 12: Ecological information

12.1. Toxicity

Disodium octaborate tetrahydrate	Daphnia EC50/48h: 113.0000 mg/l	Algae IC50/72h: 10.0000 mg/l
	Fish LC50/96h: 80.0000 mg/l	Green algae EC50/96h: 24mg/L
	Daphnia LC50/24h: 242mg/L	
Sodium Molybdate	Fish LC50/96h: 79.8000 mg/l	

No data is available on this product. May cause long-term adverse effects in the aquatic environment.

12.2. Persistence and degradability

Warning - this preparation contains a substance not yet tested completely.

12.3. Bioaccumulative potential

Caution - substance not yet fully tested.

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12.4. Mobility in soil

Caution - substance not yet fully tested.

12.5. Results of PBT and vPvB assessment

Warning - this preparation contains a substance not yet tested completely.

12.6. Other adverse effects

Warning - this preparation contains a substance not yet tested completely.

Further information

Sodium Molybdate Dihydrate. WGK 1.
 Nickel ethylenediaminetetraacetic acid. WGK 2.
 Cobalt disodium ethylenediaminetetraacetate. WGK 1.
 Disodium octaborate tetrahydrate. WGK 1.
 Zinc disodium ethylenediaminetetraacetate. WGK 2.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Dispose of in compliance with all local and national regulations.

General information

Do NOT reuse empty containers.

Disposal methods

Can be sent to landfill if in compliance with local and national regulations.

Disposal of packaging

Empty containers can be cleaned with water. 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.

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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.
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15.2. Chemical safety assessment

	No data is available on this product.
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SECTION 16: Other information**Other information**

Revision	This document differs from the previous version in the following areas: 12 - 12.1. Toxicity.
Text of risk phrases in Section 3	R20/21/22 - Harmful by inhalation, in contact with skin and if swallowed. R36/37/38 - Irritating to eyes, respiratory system and skin. R36/38 - Irritating to eyes and skin. R40 - Limited evidence of a carcinogenic effect. R60 - May impair fertility. R61 - May cause harm to the unborn child.
Text of Hazard Statements in Section 3	Acute Tox. 4: H302+H312 - Harmful if swallowed or in contact with skin Skin Irrit. 2: H315 - Causes skin irritation. Eye Irrit. 2: H319 - Causes serious eye irritation. STOT SE 3: H335 - May cause respiratory irritation. Carc. 2: H351 - Suspected of causing cancer .

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.
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neutralising additive



application environment

Many waste, recycling, remediation, manufacturing and processing operations create odour. Non-treatment of odour release can pose a serious nuisance to neighbouring communities and employees. The likely reaction to complaint if ignored, is that it can lead to considerable negative impact on the operator. Complaints, authority investigation and noncompliance with air pollution regulations are issues that operators cannot afford to ignore. They can lead to operating restrictions, costly fines, bad publicity and even closure. Apart from potential prosecution, operational inefficiencies can arise from increased levels of staff absenteeism because of illnesses caused by airborne pollutants.

product aim

Air Spectrum's **odr** range of odour neutralisers and fragranced products are specifically designed to negate the threat of these issues, by controlling odour in any environment. Their primary function is to neutralise odour before it leaves the site boundary or processing outlet. Operators using **odr** protect their neighbours from exposure to annoying smells, eliminating the possibility of complaint or investigation and ensuring compliance with air pollution regulations.

what is odr?

odr is a best-selling range of organic, non-toxic, foodgrade odour neutralisers using bio-degradable essential oils collected from sustainable resources. By working in 5 ways, **odr** odour neutraliser offers comprehensive and highly effective odour neutralisation which actually breaks down and removes odours from the air, rather than masking them, or hiding them with surfactant technology. There is a type of **odr** for every application (see overleaf for details of the full range).

When used in Air Spectrum's odour control systems, the appropriate **odr** from the range is efficiently atomised to produce a very fine mist. The mist interacts with the odour particles for a sufficient time to neutralise them. Having absorbed the odorous components, **odr** breaks down the molecular structure to form harmless, nonvolatile salts that degrade naturally.

The non-toxic and food-grade nature of **odr** allows it to be used both in outdoor environments and within buildings. It is harmless to humans and animals and will not cause irritation or health complaints.

01905 362100
www.airspectrum.com



working in 5 ways

Pairing	odr contains substances which will chemically pair with odorous compounds, changing the properties of the odour molecule, rendering it odourless.
Oxidation	Odour molecules can be oxidised to produce an odourless solution. A combination of oxygen, odr and hydrogen ions generates a safe reaction, resulting in odour neutralisation.
Adsorption	Certain odorous molecules will attach themselves to odr neutraliser, generating a minute energy charge that partly neutralises their odour and adsorbs them into a larger odourless compound.
Absorption	Certain odour compounds dissolve into odr neutraliser, losing their odour in the process.
Combination	odr odour neutraliser combines with certain odorous molecules, changing their structure to generate new molecules that are environmentally friendly and completely odourless.



For light odour problems

For use where light or intermittent odour is a problem in workplaces, such as composting facilities or landfill sites. Available in a variety of fragrances.



For high levels of odour problems

For use where there are high levels of odour on an intermittent or constant basis, such as in food processing and manufacturing facilities. Available in a non-fragranced, natural form, or in our standard range of fragrances.



For heavier odour problems

For use in facilities where higher levels of neutralisation are required, such as waste-transfer stations. Available in a variety of fragrances.



For super-strength odour abatement

For use in locations where odour levels are extremely high and where hydrocarbons and mercaptans may be present, including oil refineries, high-odour manufacturing, abattoirs and effluent plants. Available in non-fragranced, natural form only.



For constant odour problems

For use where there is a constant stream of odour, such as at landfill sites, causing discomfort to employees and neighbours. Available in a non-fragranced, natural form, or in our standard range of fragrances.



For ultra-strength odour abatement

For use in locations where odour levels are extremely high and where hydrocarbons and mercaptans may be present, including oil refineries, high-odour manufacturing, abattoirs and effluent plants. Available in non-fragranced, natural form only.

Fragrance options

odr 1-2 are available in fragranced form only

odr 3-4 are available in fragranced or non-fragranced (natural) forms

odr 5-6 are available in non-fragranced (natural) form only

Fragrances available for odr 1-4

Pine • Eucalyptus • Orange • Bubblegum • Vanilla • Strawberry
Green Grass • Cherry • Lemon • Peppermint • Cotton Fresh



A new bespoke neutraliser, available in cotton fresh fragrance, that is specially designed and chemically developed to produce positive results from problematic sites, such as landfill, composting sites, effluent treatment and food processing, where the odour is more complicated and elevated. It is an organic, non-toxic food-grade only neutraliser that uses essential oils from sustainable resources.

Air Spectrum Environmental Ltd is the leading supplier of odour control and dust suppression systems and services; supplying an extensive range of liquid odour neutralisers and dust suppression additives to both UK and International markets.

Air Spectrum operates to the highest standards and is accredited by a number of professional bodies. These include ISO 9001 quality standards accreditation as well as international environmental standard ISO 14001 accreditation.

01905 362100
www.airspectrum.com



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

1.1 Product Identifiers

Product Name	:	ODR Cotton Fresh
Product Number	:	880524
Brand	:	Air Spectrum
REACH No	:	A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS No	:	None

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

Identified uses	:	Industrial spray odour neutralising agent
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1.3 Details of the supplier of the safety data sheet

Company	:	Air Spectrum Environmental limited Spectrum House Checketts lane Industrial Estate Worcester WR3 7LW England UK
Telephone	:	+44 (0)1905 362100
Fax	:	+44 (0)1905 362101
E-mail address	:	sales@airspectrum.com

1.4 Emergency telephone number

Emergency phone	:	+44 (0)1905 362100
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Section 2: Hazards Identification

2.1 Classification of substance or mixture

Classification according to regulation (EC) No 1272/2008

Skin sensitisation (Category 1), H317

For full text of the H-standards mentioned in this Section, see section 16

Classification according to EU Directives 67/548/EEC or 1999/45/EC

R43, S37, S62

For full text of the R-phrases and S-phrases mentioned in this Section, see section 16

2.2 Label Elements

Labelling according to regulation (EC) No 1272/2008

Pictogram



Signal word

Warning

Hazard statement(s)

H317

May cause and allergic skin reaction

Precautionary statement(s)

P273

Avoid release to the environment

P302 +352

IF ON SKIN: Wash with soap and water

P363

Wash contaminated clothing before reuse

P333 +313

If skin irritation or a rash occurs: Get medical advice/attention

P331

Do NOT induce vomiting

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P501 Dispose of contents/container in accordance with local regulations

Supplementary hazard statement None
2.3 Other hazards - None

Section 3: Composition/information on ingredients

3.1	Substances		
	Synonyms	:	Not available
	CAS No	:	Not available
	EC-No	:	Not available
	Molecular Weight	:	Not available
Hazardous ingredients according to Regulation (EC) No 1272/2008 & 1999/45/EC			
Component		Classification	Concentration
Cotton Fresh Fragrance			
Cas No	Not Available	Not Available	≤5%
EC No	Not Available		

Section 4: First Aid Measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance

If Inhaled

If breathed in, move person to fresh air. If not breathing, give artificial respiration. Consult a physician

In case of skin contact

Wash off with soap and plenty of water. Consult a physician

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician. This product is not considered toxic.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or section 11

4.3 Indication of any immediate medical attention and special treatment required

No data available

Section 5: Firefighting measures

Extinguishing media

5.1 Suitable extinguishing media

Carbon dioxide, foam, dry chemical. Do not use a direct water jet.

5.2 Special hazards arising from the substance or mixture

Carbon dioxide, Carbon monoxide, Smoke.

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- 5.3 Advice for firefighters**
Avoid inhalation of smoke and fumes. In case of sufficient ventilation wear suitable respiratory equipment.
- 5.4 Further information**
No data available
-

Section 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures**
Gloves and eye protection should be worn when handling spillages.
Avoid skin/eye contact and inhalation of vapour.
Good personal washing routines should be followed after accidental release. Ensure adequate ventilation in working areas following accidental release. See also section 8.
- 6.2 Environmental precautions**
Do not allow discharge into drains, soil or any aquatic environment.
- 6.3 Methods and materials for containment and clean up**
Absorb spillages on porous inert material such as earth, sand or vermiculite and dispose of in accordance with local regulations.
Large spillages should be contained by the use of sand or another inert material, transferred to a suitable container and recovered or disposed of in accordance with local regulations.
- 6.4 Reference to other sections**
For disposal see section 13
-

Section 7: Handling and storage

- 7.1 Precautions for safe handling**
Handle in accordance with good occupational hygiene and safety practices in a well ventilated area.
Avoid direct contact with skin and eyes. Depending on working condition, this may include wearing of eye protection and protective clothing such as PVC gloves and suitable overalls. Wash hands after use.
Remove protective equipment and contaminated clothing before entering eating areas.
Avoid breathing vapours especially if the material is hot.
For precautions see section 2.2
- 7.2 Conditions for safe storage, including any incompatibilities**
Store in full, dry, airtight containers away from sources of heat and light. Do not re-use the empty container.
- 7.3 Specific end uses**
Apart from the uses mentioned in section 1.2, no specific uses are stipulated.
-

Section 8: Exposure controls/personal protection

- 8.1 Control parameters**
Components with workplace control parameters
Contains no substances with occupational exposure limit values
- 8.2 Exposure controls**
Appropriate engineering controls
-

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Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the day.

8.3 Personal protective equipment**Eye/face protection**

Safety glasses with side shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN166 (EU)

Skin protection

Handle with gloves. Gloves must be inspected before use. Dispose of gloves after use in accordance with applicable laws and good practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU directive 89/686/EEC and the standard EN374 derived from it.

Body protection

Chemical resistant apron or protective suit if splashing or repeated contact with solution is likely.

Respiratory protection

Where risk assessment shows air purifying masks are appropriate, use an appropriately selected type P3 (EU) or N100 (US)

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains

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Section 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties**

a)	Appearance	Form: Liquid Colour: Colourless to pale yellow
b)	Odour	Floral
c)	Odour threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and range	No data available
g)	Flash point	>100°C
h)	Evaporation rate	No data available
i)	Flammability (solid,gas)	No data available
j)	Upper/lower flammability explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	0.941g/mL at 20°C
n)	Water solubility	Miscible
o)	Partition coefficient: n- octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidising properties	No data available

9.2 Other safety informationNo data available

Section 10: Stability and reactivity**10.1 Reactivity**

No data available

10.2 Chemical stability

Stable at ambient temperatures

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

None known

10.5 Incompatible materials

Avoid oxidising agents

10.6 Hazardous decomposition productsNo data available

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Section 11: Toxicological information**11.1 Information on toxicological effects****Acute toxicity**

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity – single exposure

No data available

Specific target organ toxicity – repeated exposure

No data available

Aspiration hazard

No data available

Additional information

To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

Section 12: Ecological information**12.1 Toxicity**

No data available

12.2 Persistence and degradability

No data available

12.3 Bio accumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

No data available

12.6 Other adverse effects

No data available

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Further information

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