

Gardobond X 4707A

Version: 4.0

Revision Date 25.04.2016

Print Date 26.04.2016

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

1.1 Product identifier

Trade name : Gardobond X 4707A

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

Use of the Sub-
stance/Mixture : Corrosion protection agent for metal surfaces.
Recommended restrictions
on use : None known.

1.3 Details of the supplier of the safety data sheet

Company : Chemetall Ltd
Denbigh Road
Bletchley Milton Keynes MK1 1PB
Telephone : 01908 649333
Telefax : 01908 373939

Contact person product safety
Telephone : +49(0)6971652292
E-mail address : msds.de@chemetall.com

1.4 Emergency telephone number

Emergency telephone
number : 01908 649333

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Corrosive to metals, Category 1 H290: May be corrosive to metals.
Skin corrosion, Category 1C H314: Causes severe skin burns and eye damage.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Gardobond X 4707A

Version: 4.0

Revision Date 25.04.2016

Print Date 26.04.2016

Signal word	:	Danger	
Hazard statements	:	H290 H314	May be corrosive to metals. Causes severe skin burns and eye damage.
Precautionary statements	:	Prevention: P260 P262 P280	Do not breathe vapours, aerosols. Do not get in eyes, on skin, or on clothing. Wear protective gloves/ protective clothing/ eye protection/ face protection.
		Response: P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
		P303 + P361 + P353	IF ON SKIN (or hair): Take off immedi- ately all contaminated clothing. Rinse skin with water/shower.
		P305 + P351 + P338	IF IN EYES: Rinse cautiously with wa- ter for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		P308 P310	IF exposed or concerned: Immediately call a POISON CENTER or doctor/ physician.
		Disposal: P501	Dispose of contents/ container to an ap- proved waste disposal plant.

Hazardous components which must be listed on the label:
· 17439-11-1 Hexafluorotitanic acid

2.3 Other hazards

Classification "corrosive" due to the extreme pH value.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical nature : Aqueous solution

Gardobond X 4707A

Version: 4.0

Revision Date 25.04.2016

Print Date 26.04.2016

inorganic acids

Hazardous components

Chemical Name	CAS-No. EC-No. Registration number	Classification (REGULATION (EC) No 1272/2008)	Concentration [%]
Hexafluorotitanic acid	17439-11-1 241-460-4 01-2119978266-24	Met. Corr. 1; H290 Acute Tox. 3; H301 Acute Tox. 3; H331 Acute Tox. 3; H311 Skin Corr. 1B; H314	>= 1 - < 2.5
Hexafluorozirconic acid	12021-95-3 234-666-0 01-2119978267-22	Met. Corr. 1; H290 Acute Tox. 3; H301 Acute Tox. 3; H311 Acute Tox. 3; H331 Skin Corr. 1B; H314	>= 0.1 - < 1

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 contaminated clothing and shoes immediately.
First Aid responders should pay attention to self-protection
and use the recommended protective clothing
Move out of dangerous area.
- If inhaled : Move to fresh air.
If symptoms persist, call a physician.
- In case of skin contact : Wash off immediately with plenty of water for at least 15
minutes.
Call a physician immediately.
First treatment with calcium gluconate paste.

Gardobond X 4707A

Version: 4.0

Revision Date 25.04.2016

Print Date 26.04.2016

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Call a physician immediately.

If swallowed : Rinse mouth with water.
Immediately drink calcium solution (calcium tablets dissolved in water).
Do NOT induce vomiting.
Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

Risks : Causes severe skin burns and eye damage.
Watch victim for several hours because of possible delayed signs of poisoning.
If swallowed, severe burns in the oral cavity and throat as well as danger of perforation of the digestive tract and stomach.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : First treatment with calcium gluconate paste.
Immediately drink calcium solution (calcium tablets dissolved in water).
For specialist advice physicians should contact the Poisons Information Service.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : May form toxic gases on heating or in case of fire.
Hydrogen fluoride

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Use water spray to cool unopened containers.

Gardobond X 4707A

Version: 4.0

Revision Date 25.04.2016

Print Date 26.04.2016

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Wear personal protective equipment.
Evacuate personnel to safe areas.

6.2 Environmental precautions

Environmental precautions : Do not flush into surface water or sanitary sewer system.
Avoid subsoil penetration.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : Ensure adequate ventilation.
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Sweep up and shovel into suitable containers for disposal.

6.4 Reference to other sections

See chapter 8 and 13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Provide sufficient air exchange and/or exhaust in work rooms.
Avoid contact with skin and eyes.
Ensure that eye flushing systems and safety showers are located close to the working place.
Do not breathe vapours, aerosols.
To avoid risks to man and the environment, comply with the instructions for use.

Advice on protection against fire and explosion : The product itself does not burn.
Normal measures for preventive fire protection.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store in a place accessible by authorized persons only.
Store in original container.
Keep container tightly closed in a dry and well-ventilated place.
To maintain product quality, do not store in heat or direct sunlight.

Gardobond X 4707A

Version: 4.0

Revision Date 25.04.2016

Print Date 26.04.2016

Protect from frost.

Further information on storage conditions : Avoid contact with metals.

Advice on common storage : Incompatible with bases.

Storage temperature : 0 - 40 °C

7.3 Specific end use(s)

Specific use(s) : Corrosion protection agent for metal surfaces.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value	Control parameters	Update	Basis
Hexafluorotitanic acid	17439-11-1	TWA	2.5 mg/m ³	2000-06-16	2000/39/EC
Further information	: Indicative				
		TWA	2.5 mg/m ³ Fluorine	2007-08-01	GB EH40
Further information	: 2: Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used Fluorine				
Hexafluorozirconic acid	12021-95-3	TWA	2.5 mg/m ³	2000-06-16	2000/39/EC
Further information	: Indicative				
		TWA	2.5 mg/m ³ Fluorine	2007-08-01	GB EH40
Further information	: 2: Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used Fluorine				
		TWA	5 mg/m ³ Zirconium	2005-04-06	GB EH40

Gardobond X 4707A

Version: 4.0

Revision Date 25.04.2016

Print Date 26.04.2016

Further information	:	Zirconium			
		STEL	10 mg/m3 Zirconium	2005-04-06	GB EH40
Further information	:	Zirconium			

DNEL/DMEL

Hexafluorotitanic acid : End Use: Workers DNEL
 Exposure routes: Inhalation
 Potential health effects: Long-term systemic effects
 Value: 3.6 mg/m3

End Use: Workers DNEL
 Exposure routes: Inhalation
 Potential health effects: Long-term local effects
 Value: 3.6 mg/m3

End Use: Workers DNEL
 Exposure routes: Inhalation
 Potential health effects: Acute systemic effects
 Value: 3.6 mg/m3

End Use: Workers DNEL
 Exposure routes: Skin contact
 Potential health effects: Long-term systemic effects
 Value: 52 mg/kg bw/day

End Use: Workers DNEL
 Exposure routes: Skin contact
 Potential health effects: Acute systemic effects
 Value: 52 mg/kg bw/day

PNEC

Hexafluorotitanic acid : Fresh water
 Value: 0.89 mg/l

Marine water
 Value: 0.89 mg/l

Intermittent use/release
 Value: 0.074 mg/l

Gardobond X 4707A

Version: 4.0

Revision Date 25.04.2016

Print Date 26.04.2016

Sewage treatment plant
Value: 1.02 mg/l

Fresh water sediment
Value: 16.69 mg/kg dry weight (d.w.)

Marine sediment
Value: 4.89 mg/kg dry weight (d.w.)

Soil
Value: 13 mg/kg dry weight (d.w.)

8.2 Exposure controls

Engineering measures

Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

- Respiratory protection : In case of inadequate ventilation wear respiratory protection.
Respirator with a vapour filter (EN 141)
Recommended Filter type:
Type B
- Hand protection : butyl-rubber
Protective gloves complying with EN 374.
The exact break through time can be obtained from the protective glove producer and this has to be observed.
Protective gloves have to be replaced at the first sign of deterioration.
- Eye protection : Tightly fitting safety goggles
Eye protection (EN 166)
- Skin and body protection : Chemical resistant protective clothing according to DIN EN 13034 (Type 6)
- Hygiene measures : Do not breathe vapours, aerosols.
Take off contaminated clothing and shoes immediately.
Avoid contact with the skin and the eyes.
Keep away from food, drink and animal feedingstuffs.
Wash hands before breaks and immediately after handling the product.
- Protective measures : Always have on hand a first-aid kit, together with proper instructions.
Ensure that eye flushing systems and safety showers are located close to the working place.
Handle in accordance with good industrial hygiene and safety practice.

Gardobond X 4707A

Version: 4.0

Revision Date 25.04.2016

Print Date 26.04.2016

Environmental exposure controls

General advice : Do not flush into surface water or sanitary sewer system.
Avoid subsoil penetration.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	: liquid
Colour	: colourless
Odour	: odourless
Flash point	: Not applicable
Ignition temperature	: Not applicable
Auto-ignition temperature	: not auto-flammable
pH	: < 2 at 20 °C (undiluted)
Solidification temperature/range	: < 0 °C
Boiling point/boiling range	: No data available
Vapour pressure	: No data available
Density	: 1.00 - 1.04 g/cm ³ at 20 °C Method: DIN 51757
Water solubility	: completely miscible
Flow time	: ca.12 sec. at 23 °C

Gardobond X 4707A

Version: 4.0

Revision Date 25.04.2016

Print Date 26.04.2016

4 mm
Method: ISO 2431

9.2 Other information

Corrosion : Corrosive to metals
Explosivity : Gives off hydrogen by reaction with metals.

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Gives off hydrogen by reaction with metals.

10.4 Conditions to avoid

Conditions to avoid : Protect from frost, heat and sunlight.

10.5 Incompatible materials

Materials to avoid : Incompatible with bases.

10.6 Hazardous decomposition products

Risk of decomposition. : No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 20 mg/l
vapour

Gardobond X 4707A

Version: 4.0

Revision Date 25.04.2016

Print Date 26.04.2016

Exposure time: 4 h
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Skin corrosion/irritation

Skin irritation : Causes severe burns.

Serious eye damage/eye irritation

Eye irritation : Causes serious eye damage.

Respiratory or skin sensitisation

Sensitisation : No data available

Toxicology Assessment

Acute effects : 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

Ecotoxicology studies for the product are not available.

12.2 Persistence and degradability

Biodegradability : No data available

12.3 Bioaccumulative potential

Bioaccumulation : Bioaccumulation is unlikely.

12.4 Mobility in soil

Mobility : No data available

12.5 Results of PBT and vPvB assessment

Gardobond X 4707A

Version: 4.0

Revision Date 25.04.2016

Print Date 26.04.2016

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

Additional ecological information : slightly water endangering
Do not flush into surface water or sanitary sewer system.
Avoid subsoil penetration.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : In accordance with local and national regulations.
Contaminated packaging : Dispose of as unused product.
Waste Code : Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

SECTION 14: Transport information

ADR

UN number : 3264
UN proper shipping name : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. Hexafluorotitanic acid
Transport hazard class(es) : 8
Packing group : III
Classification Code : C1
Hazard Identification Number : 80
Limited Quantity (LQ) Inner : 5.00 L
Packaging
Maximum quantity : 30.00 KG
Labels : 8
Tunnel restriction code : (E)
Environmentally hazardous : no

IATA

UN number : 3264
Description of the goods : Corrosive liquid, acidic, inorganic, n.o.s. Hexafluorotitanic acid
Class : 8
Packing group : III
Labels : 8

IATA_C

Packing instruction (cargo aircraft) : 856

Gardobond X 4707A

Version: 4.0

Revision Date 25.04.2016

Print Date 26.04.2016

Packing instruction (LQ) : Y841
Maximum quantity : 60.00 L
Environmentally hazardous : no

IATA_P

Packing instruction (passenger aircraft) : 852
Packing instruction (LQ) : Y841
Maximum quantity : 5.00 L
Environmentally hazardous : no

IMDG

UN number : 3264
Description of the goods : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. Hexafluorotitanic acid
Class : 8
Packing group : III
Labels : 8
EmS Number 1 : F-A
EmS Number 2 : S-B
Limited Quantity (LQ) Inner : 5.00 L
Packaging :
Marine pollutant : no

Acids
Clear of living quarters.

Acids
Clear of living quarters.

RID

UN number : 3264
Description of the goods : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.Hexafluorotitanic acid
Transport hazard class(es) : 8
Packing group : III
Classification Code : C1
Hazard Identification Number : 80
Labels : 8
Limited Quantity (LQ) Inner : 5.00 L
Packaging :
Maximum quantity : 30.00 KG
Environmentally hazardous : no

SECTION 15: Regulatory information

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

Gardobond X 4707A

Version: 4.0

Revision Date 25.04.2016

Print Date 26.04.2016

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

Water contaminating class (Germany) : WGK 1 slightly water endangering
VWVWS A4

Other regulations : The product is classified and labelled in accordance with EC directives or respective national laws.
Regional or national implementations of GHS may not implement all hazard classes and categories.

15.2 Chemical Safety Assessment

For a mixture it is not mandatory to include an exposure scenario in the material safety data sheet.
The necessary safety - related information is stated in the first 16 sections.

SECTION 16: Other information

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

H290	May be corrosive to metals.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H331	Toxic if inhaled.

Further information

The information provided is based on our current knowledge and experience and apply to the product as delivered. Regarding the product properties, these are not guaranteed. The delivery of this safety datasheet does not free the recipient of the product from his own responsibility to follow the relevant rules and regulations concerning this product.

This data sheet contains changes from the previous version in section(s): 2
This data sheet contains changes from the previous version in section(s): 3
This data sheet contains changes from the previous version in section(s): 14