Safety Data Sheet according to (EC) No 1907/2006 as amended

SDS No. : 620947
V005.0

BONDERITE M-NT 2040 R8 CONVERSION COATING

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

1.1. Product identifier

BONDERITE M-NT 2040 R8 CONVERSION COATING
UFI: D5FN-AWDK-A20J-Q98C

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

Intended use:
Product for the conversion treatment of metals

1.3. Details of the supplier of the safety data sheet

Henkel AG & Co. KGaA
Henkelstr. 67
40589 Düsseldorf

Germany

Phone: +49 211 797 0

SDSinfo.Adhesive@henkel.com
For Safety Data Sheet updates please visit our website www.mysds.henkel.com or www.henkel-adhesives.com.

1.4. Emergency telephone number

The Henkel information service also provides an around-the-clock telephone service on phone no.+49-(0)211-797-3350 for exceptional cases.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (CLP):

Acute toxicity	Category 3
H301 Toxic if swallowed.	
Route of Exposure: Oral	
Acute toxicity	Category 2
H310 Fatal in contact with skin.	
Route of Exposure: Dermal	
Skin corrosion	Category 1A
H314 Causes severe skin burns and eye damage.	
Serious eye damage	Category 1
H318 Causes serious eye damage.	
Acute toxicity	Category 4
H332 Harmful if inhaled.	
Route of Exposure: Inhalation	

2.2. Label elements

Label elements (CLP):

Hazard pictogram:	
Contains	Sulfuric acid hydrofluoric acid
Signal word:	Danger
Hazard statement:	H301 Toxic if swallowed. H310 Fatal in contact with skin. H314 Causes severe skin burns and eye damage. H332 Harmful if inhaled.
Supplemental information	Can attack glass and vitreous materials.
Precautionary statement: Prevention	P260 Do not breathe mist/spray. P262 Do not get in eyes, on skin, or on clothing. P280 Wear protective gloves/protective clothing/eye protection/face protection.
Precautionary statement: Response	P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. 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 or doctor.

2.3. Other hazards

None if used properly.

Following substances are present in a concentration ≥ the concentration limit for depiction in Section 3 and fulfill the criteria for PBT/vPvB, or were identified as endocrine disruptor (ED):

This mixture does not contain any substances in a concentration ≥ the concentration limit for depiction in Section 3 that are assessed to be a PBT, vPvB or ED.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Declaration of the ingredients according to CLP (EC) No 1272/2008:

Hazardous components CAS No. EC No REACH-Reg. No.	Concentration	Classification	Specific Conc. Limits, M-factors and ATEs	Add. Information
Sulfuric acid 7664-93-9 231-639-5 01-2119458838-20	10- < 15 %	Skin Corr. 1A, H314	Skin Corr. 1A; H314; C >= 15 % Skin Irrit. 2; H315; C 5 - < 15 % Eye Irrit. 2; H319; C 5 - < 15 % ===== dermal:ATE = 2.140 mg/kg	EU OEL EUEXPL1D
dihydrogen hexafluorotitanate(2-) 17439-11-1 241-460-4 01-2119978266-24	1- < 5 %	Acute Tox. 3, H301 Acute Tox. 3, H311 Skin Corr. 1B, H314 Acute Tox. 3, H331 Met. Corr. 1, H290		EU OEL
hydrofluoric acid 7664-39-3 231-634-8 01-2119458860-33	1- < 4 %	Acute Tox. 2, H330 Skin Corr. 1A, H314 Acute Tox. 2, H300 Acute Tox. 1, H310	Eye Irrit. 2; H319; C 0,1 - < 1 % Skin Corr. 1A; H314; C >= 7 % Skin Corr. 1B; H314; C 1 - < 7 %	EU OEL

If no ATE values are displayed, please refer to LD/LC50 values in Section 11.
For full text of the H - statements and other abbreviations see section 16 "Other information".

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Move to fresh air, administer oxygen , keep warm ; hospitalise.

Skin contact:
Remove contaminated clothes while protecting yourself. Immediately rinse with copious amounts of running water (for 10 minutes). Then immediately treat contaminated skin with 2,5% Ca-gluconate gel. Put on a bandage with sterile gauze. GET MEDICAL ATTENTION IMMEDIATELY! Can penetrate into deeper parts of the skin and cause burns which are very painful and cure very slowly.

Eye contact:
Immediately flush eyes with soft jet of water or eye rinse solution for at least 15 minutes. Hold eyelid wide-open. Seek a doctor/hospital, eye flushing should continue during transportation to a doctor.

Ingestion:
Rinse out mouth, drink 1-2 glasses of water, do not induce vomiting.
Immediate medical treatment necessary.

4.2. Most important symptoms and effects, both acute and delayed
RESPIRATORY: Irritation, coughing, shortness of breath, chest tightness.

INGESTION: Nausea, vomiting, diarrhea, abdominal pain.

Causes burns.

4.3. Indication of any immediate medical attention and special treatment needed
See section: Description of first aid measures

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media:
All common extinguishing agents are suitable.

Extinguishing media which must not be used for safety reasons:
None known

5.2. Special hazards arising from the substance or mixture
Formation of toxic gases is possible during heating or in fires.

5.3. Advice for firefighters
Wear protective equipment.
Wear self-contained breathing apparatus.

Additional information:
Cool endangered containers with water spray jet.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Avoid contact with skin and eyes.

6.2. Environmental precautions
Do not empty into drains / surface water / ground water.

6.3. Methods and material for containment and cleaning up
Dispose of contaminated material as waste according to Section 13.
Neutralize with acid-binding material (e.g. powdered limestone).
Take up with liquid-absorbing material (sand).

6.4. Reference to other sections
See advice in section 8

SECTION 7: Handling and storage

7.1. Precautions for safe handling
When diluting, always stir slowly the product into standing water.
Avoid skin and eye contact.
Ensure that workrooms are adequately ventilated.
See advice in section 8

Hygiene measures:
Wash hands before work breaks and after finishing work.
Do not eat, drink or smoke when using this product.
Wash contaminated clothing before reuse.
The workplace should be equipped with an emergency shower and eye-rinsing facility.

7.2. Conditions for safe storage, including any incompatibilities
Store in sealed original container.
Keep only in original container.

7.3. Specific end use(s)
Product for the conversion treatment of metals

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits

Valid for
Germany

Ingredient [Regulated substance]	ppm	mg/m³	Value type	Short term exposure limit category / Remarks	Regulatory list
Sulphuric acid 7664-93-9 [SULPHURIC ACID (MIST)]		0,05	Time Weighted Average (TWA):	Indicative	ECTLV
Sulphuric acid 7664-93-9		0,1	Exposure limit(s):	1 If the AGW and BGW values are complied with, there should be no risk of reproductive damage (see Number 2.7).	TRGS 900
Sulphuric acid 7664-93-9			Short Term Exposure Classification:	Category I: substances for which the localized effect has an assigned OEL or for substances with a sensitizing effect in respiratory passages.	TRGS 900
Dihydrogen hexafluorotitanate(2-) 17439-11-1 [FLUORIDES, INORGANIC]		2,5	Time Weighted Average (TWA):	Indicative	ECTLV
Dihydrogen hexafluorotitanate(2-) 17439-11-1		1	Exposure limit(s):	4 If the AGW and BGW values are complied with, there should be no risk of reproductive damage (see Number 2.7).	TRGS 900
Dihydrogen hexafluorotitanate(2-) 17439-11-1			Skin designation:	Can be absorbed through the skin.	TRGS 900
Dihydrogen hexafluorotitanate(2-) 17439-11-1			Short Term Exposure Classification:	Category II: substances with a resorptive effect.	TRGS 900
Dihydrogen hexafluorotitanate(2-) 17439-11-1		1	Exposure limit(s):	4 If the AGW and BGW values are complied with, there should be no risk of reproductive damage (see Number 2.7).	TRGS 900
Dihydrogen hexafluorotitanate(2-) 17439-11-1			Short Term Exposure Classification:	Category II: substances with a resorptive effect.	TRGS 900
Dihydrogen hexafluorotitanate(2-) 17439-11-1			Skin designation:	Can be absorbed through the skin.	TRGS 900
Hydrogen fluoride 7664-39-3 [Hydrogen fluoride]	1,8	1,5	Time Weighted Average (TWA):	Indicative	ECTLV
Hydrogen fluoride 7664-39-3 [Hydrogen fluoride]	3	2,5	Short Term Exposure Limit (STEL):	Indicative	ECTLV
Hydrogen fluoride 7664-39-3			Skin designation:	Can be absorbed through the skin.	TRGS 900
Hydrogen fluoride 7664-39-3			Short Term Exposure Classification:	Category I: substances for which the localized effect has an assigned OEL or for substances with a sensitizing effect in respiratory passages.	TRGS 900
Hydrogen fluoride 7664-39-3	1	0,83	Exposure limit(s):	2 If the AGW and BGW values are complied with, there should be no risk of reproductive damage (see Number 2.7).	TRGS 900

Predicted No-Effect Concentration (PNEC):

Name on list	Environmental Compartment	Exposure period	Value				Remarks
			mg/l	ppm	mg/kg	others	
Sulfuric acid 7664-93-9	Predator						no potential for bioaccumulation
dihydrogen hexafluorotitanate(2-) 17439-11-1	aqua (freshwater)		0,89 mg/l				
dihydrogen hexafluorotitanate(2-) 17439-11-1	aqua (marine water)		0,89 mg/l				
dihydrogen hexafluorotitanate(2-) 17439-11-1	aqua (intermittent releases)		0,074 mg/l				
dihydrogen hexafluorotitanate(2-) 17439-11-1	sediment (freshwater)				16,69 mg/kg		
dihydrogen hexafluorotitanate(2-) 17439-11-1	Soil				13 mg/kg		
dihydrogen hexafluorotitanate(2-) 17439-11-1	sewage treatment plant (STP)		1,02 mg/l				
hydrofluoric acid 7664-39-3	aqua (freshwater)		0,89 mg/l				
hydrofluoric acid 7664-39-3	aqua (marine water)		0,089 mg/l				
hydrofluoric acid 7664-39-3	Soil				10,6 mg/kg		
hydrofluoric acid 7664-39-3	sewage treatment plant (STP)		51 mg/l				
hydrofluoric acid 7664-39-3	sediment (freshwater)				3,38 mg/kg		
hydrofluoric acid 7664-39-3	sediment (marine water)				0,338 mg/kg		
hydrofluoric acid 7664-39-3	Predator						no potential for bioaccumulation

Derived No-Effect Level (DNEL):

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
Sulfuric acid 7664-93-9	Workers	inhalation	Acute/short term exposure - local effects		0,1 mg/m3	no potential for bioaccumulation
Sulfuric acid 7664-93-9	Workers	inhalation	Long term exposure - local effects		0,05 mg/m3	no potential for bioaccumulation
dihydrogen hexafluorotitanate(2-) 17439-11-1	Workers	inhalation	Long term exposure - systemic effects		3,6 mg/m3	
dihydrogen hexafluorotitanate(2-) 17439-11-1	Workers	inhalation	Acute/short term exposure - systemic effects		3,6 mg/m3	
dihydrogen hexafluorotitanate(2-) 17439-11-1	Workers	inhalation	Long term exposure - local effects		3,6 mg/m3	
dihydrogen hexafluorotitanate(2-) 17439-11-1	Workers	dermal	Long term exposure - systemic effects		52 mg/kg	
dihydrogen hexafluorotitanate(2-) 17439-11-1	Workers	dermal	Acute/short term exposure - systemic effects		52 mg/kg	
hydrofluoric acid 7664-39-3	Workers	inhalation	Long term exposure - systemic effects		1,5 mg/m3	no potential for bioaccumulation
hydrofluoric acid 7664-39-3	Workers	inhalation	Acute/short term exposure - systemic effects		2,5 mg/m3	no potential for bioaccumulation
hydrofluoric acid 7664-39-3	Workers	inhalation	Long term exposure - local effects		1,5 mg/m3	no potential for bioaccumulation
hydrofluoric acid 7664-39-3	Workers	inhalation	Acute/short term exposure - local effects		2,5 mg/m3	no potential for bioaccumulation
hydrofluoric acid 7664-39-3	Workers	dermal	Long term exposure - systemic effects			no potential for bioaccumulation
hydrofluoric acid 7664-39-3	Workers	dermal	Acute/short term exposure - systemic effects			no potential for bioaccumulation
hydrofluoric acid 7664-39-3	Workers	dermal	Long term exposure - local effects			no potential for bioaccumulation
hydrofluoric acid 7664-39-3	Workers	dermal	Acute/short term exposure - local effects			no potential for bioaccumulation
hydrofluoric acid 7664-39-3	General population	inhalation	Long term exposure - systemic effects		0,03 mg/m3	no potential for bioaccumulation
hydrofluoric acid 7664-39-3	General population	inhalation	Acute/short term exposure - systemic effects		0,03 mg/m3	no potential for bioaccumulation
hydrofluoric acid 7664-39-3	General population	inhalation	Long term exposure - local effects		0,2 mg/m3	no potential for bioaccumulation
hydrofluoric acid 7664-39-3	General population	inhalation	Acute/short term exposure - local effects		1,25 mg/m3	no potential for bioaccumulation
hydrofluoric acid 7664-39-3	General population	dermal	Long term exposure - systemic effects			no potential for bioaccumulation
hydrofluoric acid 7664-39-3	General population	dermal	Acute/short term exposure - systemic effects			no potential for bioaccumulation
hydrofluoric acid 7664-39-3	General population	dermal	Long term exposure - local effects			no potential for bioaccumulation
hydrofluoric acid 7664-39-3	General population	dermal	Acute/short term exposure - local			no potential for bioaccumulation

			effects			
hydrofluoric acid 7664-39-3	General population	oral	Long term exposure - systemic effects		0,01 mg/kg	no potential for bioaccumulation
hydrofluoric acid 7664-39-3	General population	oral	Acute/short term exposure - systemic effects		0,01 mg/kg	no potential for bioaccumulation

Biological Exposure Indices:

Ingredient [Regulated substance]	Parameters	Biological specimen	Sampling time	Conc.	Basis of biol. exposure index	Remark	Additional Information
Dihydrogen hexafluorotitanate(2-) 17439-11-1 [Inorganic fluorine compounds (fluorides)]	Fluoride	Urine	Sampling time: End of shift.	4,0 mg/l	DE BGW		
Hydrogen fluoride 7664-39-3 [Hydrogen fluoride]	Fluoride	Urine	Sampling time: End of shift.	4,0 mg/l	DE BGW		

8.2. Exposure controls:

Engineering controls:
Ensure good ventilation/suction at the workplace.

Respiratory protection:
In case of aerosol formation, we recommend wearing of appropriate respiratory protection equipment with ABEK P2 filter (EN 14387).
This recommendation should be matched to local conditions.

Hand protection:
Chemical-resistant protective gloves (EN 374). Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374): Polychloroprene (CR; >= 1 mm thickness) or natural rubber (NR; >=1 mm thickness) Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Polychloroprene (CR; >= 1 mm thickness) or natural rubber (NR; >=1 mm thickness) This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

Eye protection:
Protective eye equipment should conform to EN166.
For eye protection, use tightly fitted safety goggles and a face-shield

Skin protection:
Protective clothing should conform to EN 14605 for liquid splashes or to EN 13982 for dusts.
Wear protective clothing of hydrofluoric acid resistant material. Check the durability of the protective clothing with your supplier, likewise the guaranteed protection time. Protective clothing, which is not in
accordance with the required protection, has to be immediately cleaned and changed after contamination with hydrofluoric acid containing products.

Advices to personal protection equipment:
The information provided on personal protective equipment is for guidance purposes only. A full risk assessment should be conducted prior to using this product to determine the appropriate personal protective equipment to suit local conditions. Personal protective equipment should conform to the relevant EN standard.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Delivery form	liquid
Colour	Colourless / Colorless
Odor	Characteristic

Physical state	liquid
Melting point	Not applicable, Product is a liquid
Solidification temperature	< 0 °C (< 32 °F) Aqueous solution
Initial boiling point	> 100 °C (> 212 °F) Aqueous solution
Flammability	Not applicable Aqueous solution
Explosive limits	Not applicable, The product is not flammable.
Flash point	> 100 °C (> 212 °F) Aqueous solution
Auto-ignition temperature	Not applicable, Aqueous solution
Decomposition temperature	Not applicable, Substance/mixture is not self-reactive, no organic peroxide and does not decompose under foreseen conditions of use
pH (20 °C (68 °F); Conc.: 10 % product; Solvent: Demineralised water)	0 - 2 PH-value, potentiometer
Viscosity (kinematic) (40 °C (104 °F);)	1,7 mm2/s
Viscosity, dynamic (; 20 °C (68 °F))	Aqueous solution
Solubility (qualitative) (20 °C (68 °F); Solvent: Water)	fully soluble
Partition coefficient: n-octanol/water	Not applicable Mixture
Vapour pressure (50 °C (122 °F))	102 - 132 mbar Values referring to water
Vapour pressure (20 °C (68 °F))	23,4 mbar Values referring to water
Density (20 °C (68 °F))	1,1 - 1,4 g/cm3 density, weight
Relative vapour density: (20 °C)	< 1
Particle characteristics	Not applicable Product is a liquid

9.2. Other information

Other information not applicable for this product

SECTION 10: Stability and reactivity

10.1. Reactivity
Reaction with strong bases
Can attack glass and vitreous materials.

10.2. Chemical stability
Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions
See section reactivity

10.4. Conditions to avoid
No decomposition if used according to specifications.

10.5. Incompatible materials
See section reactivity.

10.6. Hazardous decomposition products
None if used for intended purpose.
In case of fire toxic gases can be released.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute oral toxicity:

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

Hazardous substances CAS-No.	Value type	Value	Species	Method
Sulfuric acid 7664-93-9	LD50	2.140 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)

Acute dermal toxicity:

Can penetrate into deeper parts of the skin and cause severe burns which are very painful and cure very slowly.

Hazardous substances CAS-No.	Value type	Value	Species	Method
Sulfuric acid 7664-93-9	Acute toxicity estimate (ATE)	2.140 mg/kg		Expert judgement

Acute inhalative toxicity:

No substance data available.

No substance data available.
No data available.

Skin corrosion/irritation:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Exposure time	Species	Method
hydrofluoric acid 7664-39-3	corrosive	4 h	rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)

Serious eye damage/irritation:

No data available.

Respiratory or skin sensitization:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Based on available data, the classification criteria are not met.

Hazardous substances CAS-No.	Result	Test type	Species	Method
dihydrogen hexafluorotitanate(2-) 17439-11-1	not sensitising	Guinea pig maximisation test	guinea pig	OECD Guideline 406 (Skin Sensitisation)

Germ cell mutagenicity:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Based on available data, the classification criteria are not met.

Hazardous substances CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
Sulfuric acid 7664-93-9	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
dihydrogen hexafluorotitanate(2-) 17439-11-1	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
dihydrogen hexafluorotitanate(2-) 17439-11-1	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
hydrofluoric acid 7664-39-3	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
dihydrogen hexafluorotitanate(2-) 17439-11-1	negative	oral: gavage		rat	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)

Carcinogenicity

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Based on available data, the classification criteria are not met.

Hazardous components CAS-No.	Result	Route of application	Exposure time / Frequency of treatment	Species	Sex	Method
dihydrogen hexafluorotitanate(2-) 17439-11-1		oral: feed	95 w, males; 99 w, females continuous	rat	male/female	EPA OPP 83-5 (Combined Chronic Toxicity / Carcinogenicity)

Reproductive toxicity:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Based on available data, the classification criteria are not met.

Hazardous substances CAS-No.	Result / Value	Test type	Route of application	Species	Method
dihydrogen hexafluorotitanate(2-) 17439-11-1	NOAEL P 28,4 mg/kg NOAEL F1 28,4 mg/kg	three-generation study	oral: drinking water	rat	not specified

STOT-single exposure:

No data available.

STOT-repeated exposure:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result / Value	Route of application	Exposure time / Frequency of treatment	Species	Method
Sulfuric acid 7664-93-9	LOAEL 0.3 mg/m3	inhalation: aerosol	28 d 6 h/d, 5 d/w	rat	OECD Guideline 412 (Repeated Dose Inhalation Toxicity: 28/14-Day)
dihydrogen hexafluorotitanate(2-) 17439-11-1	NOAEL ca. 25 ppm	oral: gavage	28 days once per day	rat	OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity in Rodents)
hydrofluoric acid 7664-39-3	NOAEL 0.88 ppm	inhalation: gas	91 d (65 exposures) 6 h/d, 5 days/week	rat	equivalent or similar to OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day)

Aspiration hazard:

No data available.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

No data available.

SECTION 12: Ecological information

General ecological information:

Do not empty into drains / surface water / ground water.
Locally harmful for aquatic and landliving organisms because of low pH and corrosive properties.

12.1. Toxicity

Toxicity (Fish):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Sulfuric acid 7664-93-9	LC50	> 16 - 28 mg/l	96 h	Lepomis macrochirus	OECD Guideline 203 (Fish, Acute Toxicity Test)
dihydrogen hexafluorotitanate(2-) 17439-11-1	LC50	172,4 mg/l	96 h	Danio rerio	OECD Guideline 203 (Fish, Acute Toxicity Test)
dihydrogen hexafluorotitanate(2-) 17439-11-1	NOEC	4 mg/l	21 d	Oncorhynchus mykiss	OECD Guideline 210 (fish early life stage toxicity test)
hydrofluoric acid 7664-39-3	LC50	51 mg/l	96 h	Oncorhynchus mykiss	other guideline:
hydrofluoric acid 7664-39-3	NOEC	4 mg/l	21 d	Oncorhynchus mykiss	other guideline:

Toxicity (aquatic invertebrates):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Sulfuric acid 7664-93-9	EC50	> 100 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
dihydrogen hexafluorotitanate(2-) 17439-11-1	EC50	48,2 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
hydrofluoric acid 7664-39-3	EC50	270 mg/l	48 h	Daphnia sp.	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

Chronic toxicity (aquatic invertebrates):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
dihydrogen hexafluorotitanate(2-) 17439-11-1	NOEC	3,7 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)
hydrofluoric acid 7664-39-3	NOEC	3,7 mg/l	21 d	Daphnia magna	other guideline:

Toxicity (Algae):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Sulfuric acid 7664-93-9	EC50	> 100 mg/l	72 h	Desmodesmus subspicatus	OECD Guideline 201 (Alga, Growth Inhibition Test)
Sulfuric acid 7664-93-9	NOEC	100 mg/l	72 h	Desmodesmus subspicatus	OECD Guideline 201 (Alga, Growth Inhibition Test)
dihydrogen hexafluorotitanate(2-) 17439-11-1	EC50	10,82 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
dihydrogen hexafluorotitanate(2-) 17439-11-1	EC10	1,31 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
hydrofluoric acid 7664-39-3	EC10	650 mg/l	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)
hydrofluoric acid 7664-39-3	EC50	> 1.000 mg/l	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)

Toxicity (microorganisms):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
dihydrogen hexafluorotitanate(2-) 17439-11-1	NOEC	231 mg/l	16 h	Pseudomonas putida	DIN 38412, part 8 (Pseudomonas Zellvermehrungshemm-Test)
hydrofluoric acid 7664-39-3	EC10	231 mg/l	16 h	not specified	DIN 38412, part 8 (Pseudomonas Zellvermehrungshemm-Test)

12.2. Persistence and degradability

Biodegradability (Screening Tests):
No data available.

(Bio)degradability (Simulation Tests):
No data available.

12.3. Bioaccumulative potential

Partition Coefficient (octanol/water)
No data available.

Bioconcentration factor (BCF)
The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Bioconcentration factor (BCF)	Exposure time	Temperature	Species	Method
dihydrogen hexafluorotitanate(2-) 17439-11-1	53 - 58			not specified	other guideline:

12.4. Mobility in soil

No data available.

12.5. Results of PBT / vPvB / PMT / vPvM assessment

PBT/vPvB
The following table contains only substances that fulfill the criteria as PBT and/or vPvB.
The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances **CAS-No.**	**PBT**	**vPvB**
Sulfuric acid 7664-93-9	According to Annex XIII to Regulation (EC) No 1907/2006, a PBT and vPvB assessment shall not be conducted for inorganic substances.	
hydrofluoric acid 7664-39-3	According to Annex XIII to Regulation (EC) No 1907/2006, a PBT and vPvB assessment shall not be conducted for inorganic substances.	

PMT/vPvM
This mixture does not contain any substances that are assessed to be a PMT or vPvM.
Based on available data, the classification criteria are not met.

12.6. Endocrine disrupting properties

No data available.

12.7. Other adverse effects
If acidic or alkaline products are discharged into wastewater installations care must be taken that the discharged wastewater has a pH in the range pH 6 - 10, as pH variations could cause disorders in wastewater channels and biological sewage treatment plants. The local discharge regulations take precedence.
waste water: harmful effect due to low pH-value and toxic fluoride component.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Product disposal:
In consultation with the responsible local authority, must be subjected to special treatment.

Waste code
The valid EWC waste code numbers are source-related. The manufacturer is therefore unable to specify EWC waste codes for the articles or products used in the various sectors. The EWC codes listed are intended as a recommendation for users. We will be happy to advise you.
110106

SECTION 14: Transport information

14.1. UN number or ID number

ADR	2922
RID	2922
ADN	2922
IMDG	2922
IATA	2922

14.2. UN proper shipping name

ADR	CORROSIVE LIQUID, TOXIC, N.O.S. (Sulphuric acid,Hexafluoro titanic acid,Hydrofluoric acid)
RID	CORROSIVE LIQUID, TOXIC, N.O.S. (Sulphuric acid,Hexafluoro titanic acid,Hydrofluoric acid)
ADN	CORROSIVE LIQUID, TOXIC, N.O.S. (Sulphuric acid,Hexafluoro titanic acid,Hydrofluoric acid)
IMDG	CORROSIVE LIQUID, TOXIC, N.O.S. (Sulphuric acid,Hexafluoro titanic acid,Hydrofluoric acid)
IATA	Corrosive liquid, toxic, n.o.s. (Sulphuric acid,Hexafluoro titanic acid,Hydrofluoric acid)

14.3. Transport hazard class(es)

ADR	8 (6.1)
RID	8 (6.1)
ADN	8 (6.1)
IMDG	8 (6.1)
IATA	8 (6.1)

14.4. Packing group

ADR	II
RID	II
ADN	II
IMDG	II
IATA	II

14.5. Environmental hazards

ADR	not applicable
RID	not applicable
ADN	not applicable
IMDG	not applicable
IATA	not applicable

14.6. Special precautions for user

ADR	not applicable Tunnelcode: (E)
RID	not applicable
ADN	not applicable
IMDG	IMDG-Code: Segregation group 1- Acids
IATA	not applicable

14.7. Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information

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

Ozone Depleting Substance (ODS) (Regulation (EC) No 2024/590):	Not applicable
Prior Informed Consent (PIC) (Regulation (EU) No 649/2012):	Not applicable
Persistent organic pollutants (Regulation (EU) 2019/1021):	Not applicable

VOC content (2010/75/EU)	0 %
Seveso III (2012/18/EU):	H2, ACUTE TOXIC (Category 2, all exposure routes; Category 3, inhalation)

This product is regulated by Regulation (EU) 2019/1148: all suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point. Please see https://ec.europa.eu/home-affairs/what-we-do/policies/counter-terrorism/protection/implementation-explosives-precursors-legislation_en.

National regulations/information (Germany):

WGK:	WGK 2: significantly water endangering (Ordinance on facilities for handling substances that are hazardous to water (AwSV)) Classification according to AwSV, Annex 1 (5.2)
Storage class according to TRGS 510:	6.1D
General remarks (DE):	This product is in scope of the German regulation "ChemikalienVerbotsVerordnung"

15.2. Chemical safety assessment

A chemical safety assessment has not been carried out.

SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

H290 May be corrosive to metals.
H300 Fatal if swallowed.
H301 Toxic if swallowed.
H310 Fatal in contact with skin.
H311 Toxic in contact with skin.
H314 Causes severe skin burns and eye damage.
H330 Fatal if inhaled.
H331 Toxic if inhaled.

Abbreviations and acronyms:

ADG(-Code): Australian Dangerous Goods (Code)
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road
ASTM: American Society for Testing and Materials
ATE: acute toxicity estimate
AS: Australian Standard
AwSV: Ordinance on Installations for the Handling of Substances Hazardous to Water
CAS: Chemical Abstract Service
CLP: Regulation (EC) No 1272/2008
CMR: cancerogenic, mutagenic or reprotoxic
DIN: German Institute for Standardization
ECx: Effective concentration (x% effective level)
ECHA: European Chemicals Agency
EC-Nummer: Substance number in the EU-inventories EINECS/ELINCS
ECTLV: European community threshold limit value
ED:Substance identified as having endocrine disrupting properties
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
EN : European Standard
ENCS: Japanese chemical inventory
EPA: US Environmental Protection Agency
EU: European Union
EU EXPLD1: Substance listed in Annex I, Reg (EC) No. 2019/1148
EU EXPLD2: Substance listed in Annex II, Reg (EC) No. 2019/1148
EWC: European Waste Catalogue
GHS: Globally Harmonised System for Classification and Labelling of Chemicals
GLP: Good Laboratory Practice
HSNO: Hazardous Substances and New Organisms
IARC: International Agency for Research of Cancer
IATA: International Air Transport Association
IBC-Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IC50: half maximal inhibitory concentration
ICAO: International Civil Aviation Organization
IMDG-Code: International Maritime Code for Dangerous Goods
IMO: International Maritime Organization
ISO: International Standardization Organisation
LC50: Median lethal concentration
LD50: Median lethal dose
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
n.o.s.: not otherwise specified
NO(A)EC: No (adverse) effect concentration
NO(A)EL: No (adverse) effect level
NZS: New Zealand Standard
OECD: Organisation for Economic Co-operation and Development
OEL: Occupational Exposure Limit
OPPT: US EPA Office of Pollution Prevention and Toxics
OPPTS: US EPA Office of Prevention, Pesticides and Toxic Substances
PBT: Persistent, bioaccumulative, toxic
PMT: Persistent, mobile and toxic
(Q)SAR: (Quantitative) structure–activity relationship

REACH: Regulation (EC) No. 1907/2006
RID: Regulations concerning the International Transport of Dangerous Goods by Rail
SADT: Self Accelerating Decomposition Temperature
SDS: Safety Data Sheet
STOT: Specific Target Organ Toxicity
STOT SE: Specific Target Organ Toxicity - single exposure
STOT RE: Specific Target Organ Toxicity - repeated exposure
SUSMP: Standard for the Uniform Scheduling of Medicines and Poisons
SVHC: Substance of very high concern (REACH Candidate List)
TRGS: German Technical Rules for hazardous substances
UN: United Nations
VOC: Volatile Organic Compound
814.018 VOC Reg CH: Swiss Ordinance 814.018 on the Incentive Tax on Volatile Organic Compounds
vPvB: Very persistent, very bioaccumulative
vPvM: Very persistent and very mobile
VwVwS: Administrative Regulation on Substances Hazardous to Waters
WGK: Water hazard class

Further information:

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