SAFETY DATA SHEET

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)

Issue Date 19-Aug-2021 **Revision Date** 14-Feb-2023 **Version** 1.9

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Code(s) 2054849

Product Name Ferrous Ammonium Sulfate Standard Solution 0.125N

Unique Formula Identifier (UFI) 4VXF-XF6H-Y00V-PYS1

Molecular weight No data available

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

Recommended Use Standard solution.

Uses advised against Consumer use

1.3. Details of the supplier of the safety data sheet

Supplier
HACH UK
Laser House
Ground Floor, Suite B
Waterfront Quay, Salford Quays
GB - Manchester, M50 3XW
Tel. +44 (0) 161 872 1487
info-uk@hach.com

HACH Ireland
Unit 34 GB Business Park
Little Island
IRL-Co. Cork
T45 H681
Tel. +353 (0)146 02 522
info-ie@hach.com

1.4. Emergency telephone number

UK: Poison Control Center Mainz: Tel: +49 (0) 6131 19240 - 24 hour emergency service
IE: National Poisons Information Centre (NPIC) 01 809 2566 (24/7)

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Skin corrosion/irritation	Category 2 - (H315)
Serious eye damage/eye irritation	Category 1 - (H318)
Carcinogenicity	Category 1B - (H350)

Reproductive toxicity	Category 1A - (H361)
Acute aquatic toxicity	Category 1 - (H400)
Chronic aquatic toxicity	Category 1 - (H410)

2.2. Label elements

Contains Cadmium, Sulfuric acid 2%



Signal word
Danger

Hazard statements
H315 - Causes skin irritation
H318 - Causes serious eye damage
H350 - May cause cancer
H361 - Suspected of damaging fertility or the unborn child
H410 - Very toxic to aquatic life with long lasting effects

Precautionary Statements - EU (§28, 1272/2008)
P201 - Obtain special instructions before use
P273 - Avoid release to the environment
P280 - Wear protective gloves and eye/face protection
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P308 + P313 - IF exposed or concerned: Get medical advice/attention
P310 - Immediately call a POISON CENTER or doctor/physician
P332 + P313 - If skin irritation occurs: Get medical advice/attention
P391 - Collect spillage

2.3. Other hazards

No information available.

PBT & vPvB
This mixture contains no substance considered to be persistent, bioaccumulating or toxic (PBT)
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB)

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Not applicable

3.2 Mixtures

Chemical name	CAS No. EC No. Index No.	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
Sulfuric acid, ammonium iron(2+) salt (2:2:1), hexahydrate	7783-85-9 233-151-8 -	1 - 5%	Not classified	-	-	-
Sulfuric acid	7664-93-9 (016-020-00-8) 231-639-5 016-020-00-8	1 - 5%	Skin Corr. 1A - H314	Eye Irrit. 2 :: 5%<=C<15% Skin Corr. 1A :: C>=15% Skin Irrit. 2 :: 5%<=C<15%	-	-
Cadmium	7440-43-9 231-152-8 048-002-00-0	<1%	Acute Tox. 3 - H301 Acute Tox. 2 - H330 Muta. 2 - H341 Carc. 1B - H350 Repr. 2 - H361fd STOT RE 1 - H372 Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410	-	-	-

Chemical name	REACH registration number
Sulfuric acid	01-2119458838-20-xxxx

Full text of H- and EUH-phrases: see section 16

Acute Toxicity Estimate — *If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components*

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapour - mg/L	Inhalation LC50 - 4 hour - gas - ppm
Cadmium 7440-43-9	225 mg/kg	None reported	0.025 mg/L	None reported	None reported

This product contains one or more candidate substance(s) of very high concern (Regulation (EC) No. 1907/2006 (REACH), Article 59)

Chemical name	CAS No	SVHC candidates
Cadmium	7440-43-9	X

Section 4: FIRST AID MEASURES

4.1. Description of first aid measures

General advice — Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get medical advice/attention.

Inhalation — Remove to fresh air. Get medical attention immediately if symptoms occur.

Eye contact	Get immediate medical attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area.
Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if symptoms occur.
Ingestion	Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a doctor immediately.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

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

Symptoms	Burning sensation.

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

Note to doctors	Treat symptomatically.

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	No information available.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	Thermal decomposition can lead to release of irritating and toxic gases and vapours.
Hazardous combustion products	This material will not burn.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.
Additional information	Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation.
For emergency responders	Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions	Prevent further leakage or spillage if safe to do so.

6.3. Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Take up mechanically, placing in appropriate containers for disposal.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

Section 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse.

General hygiene considerations Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Store locked up. Accessible only for authorized persons.

7.3. Specific end use(s)

Specific use(s) Analytical reagent.
Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure Limits

Chemical name	European Union	United Kingdom	Ireland
Sulfuric acid, ammonium iron(2+) salt (2:2:1), hexahydrate 7783-85-9	-	TWA: 1 mg/m³ STEL: 2 mg/m³	TWA: 1 mg/m³ STEL: 2 mg/m³
Sulfuric acid 7664-93-9	TWA: 0.05 mg/m³	TWA: 0.05 mg/m³ STEL: 0.15 mg/m³	TWA: 0.05 ppm STEL: 0.15 ppm
Cadmium 7440-43-9	TWA: 0.001 mg/m³	TWA: 0.025 mg/m³ STEL: 0.075 mg/m³	TWA: 0.001 mg/m³ TWA: 0.004 mg/m³ STEL: 0.003 mg/m³ STEL: 0.012 mg/m³

Biological occupational exposure limits

Chemical name	European Union	United Kingdom	Ireland
Cadmium 7440-43-9	-	-	2 µg/g Creatinine (urine - not critical) 2 µg/g Creatinine (urine - Cadmium not critical)

Derived No Effect Level (DNEL) No information available.

Predicted No Effect Concentration (PNEC) No information available.

Additional information No information available.

8.2. Exposure controls

Engineering controls Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Personal protective equipment
Eye/face protection Wear safety glasses with side shields (or goggles).

Hand protection Wear suitable gloves. Barrier creams may help to protect the exposed areas of skin. Gloves must be inspected prior to use. The selected protective gloves have to satisfy the specifications of EU Directive 2016/425 and the standard EN 374-1:2016 derived from it. Chemical resistant gloves made of butyl rubber or nitrile rubber category III acco.

Gloves			
Duration of contact	PPE - Glove material	Glove thickness	Break through time
Short term	Wear protective nitrile rubber gloves	0,20 mm	>30 minutes
Long term (repeated)	Wear protective Viton™ gloves	0,70 mm	>480 minutes

Skin and body protection Wear suitable protective clothing. Wash contaminated clothing before reuse. Avoid contact with eyes, skin and clothing.

Respiratory protection Ensure adequate ventilation. No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required. Wear breathing apparatus if exposed to vapours/dusts/aerosols.

Recommended filter type: ABEK-P3.

General hygiene considerations Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work.

Environmental exposure controls Do not allow into any sewer, on the ground or into any body of water.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state Liquid

Colour light green **Odour** Not determined

Odour threshold No data available

Property	Values	Remarks • Method
Molecular weight	No data available	

pH	0.9	@ 20 °C
Melting point / freezing point	~ -1 °C / 30.2 °F	
Initial boiling point and boiling range	~ 100 °C / 212 °F	
Evaporation rate	1.04 (water = 1)	
Vapour pressure	23.627 mm Hg / 3.15 kPa at 25 °C / 77 °F	
Relative vapor density	0.62	
Specific Gravity	1.038	
Partition coefficient	Not applicable	
Soil Organic Carbon-Water Partition Coefficient	Not applicable	
Autoignition temperature	No data available	
Decomposition temperature	No data available	
Dynamic viscosity	No data available	
Kinematic viscosity	No data available	
Relative density	1.038 g/mL	@ 20 °C

Solubility(ies)

Water solubility

Water solubility classification	Water solubility	Water Solubility Temperature
Soluble	> 1000 mg/L	25 °C / 77 °F

Solubility in other solvents

Chemical Name	Solubility classification	Solubility	Solubility Temperature
Acid	Soluble	> 1000 mg/L	25 °C / 77 °F

Metal Corrosivity

Steel Corrosion Rate	2.92 mm/yr / 0.11 in/yr
Aluminum Corrosion Rate	4.06 mm/yr / 0.16 in/yr

Explosive properties

Upper explosion limit	No data available
Lower explosion limit	No data available

Flammable properties

Flash point	No data available

Flammability

Upper flammability limit:	No data available
Lower flammability limit	No data available

Oxidising properties No data available.

Bulk density No data available

9.2. Other information

No information available.

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity

Reactivity No information available.

10.2. Chemical stability

Stability Stable under normal conditions.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid None known based on information supplied.

10.5. Incompatible materials

Incompatible materials Strong bases. Metals.

10.6. Hazardous decomposition products

Hazardous Decomposition Products Thermal decomposition can lead to release of irritating and toxic gases and vapours.

Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity
Based on available data, the classification criteria are not met

Mixture No data available.

Substance Test data reported below.

Oral Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid, ammonium iron(2+) salt (2:2:1), hexahydrate	Rat LD_{50}	3250 mg/kg	None reported	None reported	Vendor SDS
Cadmium	Rat LD_{50}	225 mg/kg	None reported	None reported	ERMA

Inhalation (Dust/Mist) Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data

Cadmium	Rat LC_{50}	0.025 mg/L	None reported	None reported	LOLI

Acute Toxicity Estimate (ATE)

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	57,692.30 mg/kg
ATEmix (inhalation-dust/mist)	12.80 mg/l

Unknown acute toxicity
0 % of the mixture consists of ingredient(s) of unknown toxicity.

Skin corrosion/irritation
Classification based on data available for ingredients. Irritating to skin.

Mixture No data available.

Substance Test data reported below.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sulfuric acid	Existing human experience	Human	None reported	None reported	Corrosive to skin	HSDB

Serious eye damage/eye irritation
Classification based on data available for ingredients. Causes burns. Risk of serious damage to eyes.

Mixture No data available.

Substance Test data reported below.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sulfuric acid	Existing human experience	Human	None reported	None reported	Corrosive to eyes	HSDB

Respiratory or skin sensitisation
Based on available data, the classification criteria are not met.

Mixture No data available.

Substance No data available.

STOT - single exposure
Based on available data, the classification criteria are not met.

Mixture No data available.

Substance Test data reported below.

Oral Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Cadmium	Rabbit TD_{Lo}	70 mg/kg	None reported	None reported	RTECS

Inhalation (Dust/Mist) Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Cadmium	Human LC_{Lo}	39 mg/m³	20 minutes	**Vascular** Thromobosis distant from injection site **Lungs, Thorax, or Respiration** Respiratory depression	RTECS

Inhalation (Vapor) Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid	Human TD_{Lo}	0.144 mg/L	5 minutes	**Lungs, Thorax, or Respiration** Dyspnea	RTECS

STOT - repeated exposure
Based on available data, the classification criteria are not met.

Mixture No data available.

Substance Test data reported below.

Oral Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Cadmium	Rat TD_{Lo}	37.5 mg/kg	30 days	**Biochemical** Enzyme inhibition, induction, or change in blood or tissue levels (other enzymes) **Blood** Other changes **Kidney, Ureter, or Bladder** Other changes in urine composition	RTECS

Inhalation (Dust/Mist) Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Cadmium	Man TD_{Lo}	0.000088 mg/L	8.6 years	**Kidney, Ureter, or Bladder** Proteinuria	RTECS

Inhalation (Vapor) Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid	Human TC_{Lo}	0.003 mg/L	168 days	**Musculoskeletal** Changes in teeth and supporting structures	RTECS

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

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed as mutagenic

Chemical name	European Union
Cadmium	Muta. 2

Mixture invitro **Data** No data available.

Substance invitro **Data** Test data reported below.

Chemical name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Sulfuric acid	Cytogenetic analysis	Hamster ovary	4 mmol/L	None reported	Positive test result for mutagenicity	No information available
Cadmium	DNA damage	Human lymphocyte	0.25 mmol/L	1 hours	Positive test result for mutagenicity	RTECS

Mixture invivo **Data** No data available.

Substance invivo **Data** No data available.

Carcinogenicity

Contains a known or suspected carcinogen. Classification based on data available for ingredients. May cause cancer.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	European Union
Cadmium	Carc. 1B

Mixture No data available.

Substance Test data reported below.

Inhalation (Dust/Mist) Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Cadmium	Human	0.129 mg/L	20 years	**Lungs, Thorax, or Respiration** Tumors	RTECS

Reproductive toxicity

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

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed as reproductive toxins.

Chemical name	European Union
Cadmium	Repr. 2

Mixture No data available.

Substance Test data reported below.

Oral Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Cadmium	Rat TD_{Lo}	23 mg/kg	22 days	**Specific Developmental Abnormalities** Blood and lymphatic systems (including spleen and marrow)	RTECS

Inhalation (Vapor) Exposure Route:

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid	Rabbit TC_{Lo}	0.02 mg/L	7 hours	**Specific Developmental Abnormalities** Musculoskeletal system	No information available

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

11.2 Information on other hazards
Other dangerous properties can not be excluded. Handle in accordance with good industrial hygiene and safety practice.

11.2.1. Endocrine disrupting properties
Endocrine disrupting properties No information available.

11.2.2. Other information
Other adverse effects No information available.

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity Very toxic to aquatic life with long lasting effects.

Mixture

Acute aquatic toxicity: No data available.

Aquatic Chronic Toxicity: No data available.

Substance

Acute aquatic toxicity: Test data reported below.

Fish:

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Cadmium	96 hours	*Morone saxatilis*	LC_{50}	0.019 mg/L	PEEN

Crustacea:

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Cadmium	48 Hours	None reported	EC_{50}	0.58 mg/L	PEEN

Algae:

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Cadmium	72 Hours	None reported	EC_{50}	0.132 mg/L	PEEN

Aquatic Chronic Toxicity: Test data reported below.

Fish:

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Cadmium	7 days	*Epinephelus coioides*	NOEC	0.03333 mg/L	ECHA

Crustacea:

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Cadmium	21 days	*Ctenodrilus serratus*	NOEC	0.001 mg/L	ECHA

Algae:

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Cadmium	3 days	*Chaetoceros compressum*	EC_{10}	0.00183 mg/L	ECHA

12.2. Persistence and degradability

Mixture No data available.

12.3. Bioaccumulative potential

Mixture: No data available.

Partition coefficient Not applicable

12.4. Mobility in soil

Soil Organic Carbon-Water Partition Coefficient Not applicable

12.5. Results of PBT and vPvB assessment

The components in this formulation do not meet the criteria for classification as PBT or vPvB.

Chemical name	PBT and vPvB assessment
Sulfuric acid	The substance is not PBT / vPvB
Cadmium	PBT assessment does not apply

12.6. Endocrine disrupting properties

Endocrine Disruptor Information: This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects

No information available.

Ozone: Not applicable

Ozone depletion potential (ODP): No information available

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Advice on Disposal

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Waste disposal number of waste from residues/unused products

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and

discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste.

Waste disposal number of used product

160506	WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste.
Contaminated packaging	Dispose of contents/containers in accordance with local regulations.
Other Information	Waste codes should be assigned by the user based on the application for which the product was used.

Section 14: TRANSPORT INFORMATION

IMDG

14.1 UN number or ID number	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing Group	Not regulated
14.5 Marine pollutant	This material meets the definition of a marine pollutant
Environmental hazards	Yes
14.6 Special precautions for user	See section 6-8 for more information
14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code	Not applicable

ADR

14.1 UN number or ID number	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazards	Yes
14.6 Special precautions for user	See section 6-8 for more information

IATA Not regulated

14.1 UN number or ID number	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Yes
14.6 Special precautions for user	See section 6-8 for more information

Additional information

There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods.
If the item is not in a reagent set or kit, the classification given above applies.
If the item is part of a reagent set or kit the classification would change to the following:
UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.
If the item is not regulated, the Chemical Kit classification does not apply.

Section 15: REGULATORY INFORMATION

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

National regulations

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Take note of Directive 94/33/EC on the protection of young people at work

Take note of Directive 92/85/EC on the protection of pregnant and breastfeeding women at work

Authorisations and/or restrictions on use:
This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Chemical name	Restricted substance per REACH Annex XVII	Substance subject to authorisation per REACH Annex XIV
Sulfuric acid, ammonium iron(2+) salt (2:2:1), hexahydrate - 7783-85-9	65.	
Sulfuric acid - 7664-93-9	75.	
Cadmium - 7440-43-9	72. 23. 28. 75.	

Persistent Organic Pollutants Not applicable

Export Notification requirements This product contains substances which are regulated pursuant to Regulation (EC) No. 649/2012 of the European parliament and of the council concerning the export and import of dangerous chemicals

Chemical name	European Export/Import Restrictions per (EC) 689/2008 - Annex Number
Cadmium - 7440-43-9	I.1 I.2

Dangerous substance category per Seveso Directive (2012/18/EU)
• E1 - Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1

Ozone-depleting substances (ODS) regulation (EC) 1005/2009
Not applicable

Germany

Water hazard class (WGK) strongly hazardous to water (WGK 3)

France

Occupational Illnesses (R-463-3, France)

Chemical name	French RG number	Title
Sulfuric acid 7664-93-9	RG 5,RG 14,RG 15,RG 15bis,RG 20bis RG 14,RG 20bis,RG 65	-
Cadmium 7440-43-9	RG 61,RG 61bis	-

International Inventories

EINECS/ELINCS	Complies
TSCA	Complies
DSL/NDSL	Complies
ENCS	Complies
IECSC	Complies
KECL - Existing substances	Complies
PICCS	Complies
AICS	Complies

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

Chemical Safety Report Chemical safety assessments for substances in this mixture were not carried out.

Section 16: OTHER INFORMATION

Issue Date 19-Aug-2021

Revision Date 14-Feb-2023

Revision Note New SDS, SDS sections updated, 3, 9, 11, 12.

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend

**	Hazard Designation
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieure
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
CAS	Chemical Abstracts Service Number
Ceiling	Maximum limit value
CLP	Classification, Labelling and Packaging of substances and mixtures [Regulation (EC) No. 1272/2008]
DNEL	Derived No Effect Level (DNEL)
EC	European Community
ECHA	ECHA (The European Chemicals Agency)
EC50	Effective Concentration to 50% of a test population
EEC	European Economic Community
EN	European Standard
IMDG	International Maritime Dangerous Goods (IMDG)
IATA	International Air Transport Association (IATA)
IATA-DGR	International Air Transport Association - Dangerous Goods Regulations
ICAO	International Civil Aviation Organization
ICAO-TI	International Civil Aviation Organization - Technical Instructions
IUCLID	IUCLID (The International Uniform Chemical Information Database)
GHS	Globally Harmonized System of Classification and Labelling of Chemicals

LOAEL	Lowest observed adverse effect level
LOAEC	Lowest observed adverse effect concentration
LC50	Lethal Concentration to 50% of a test population
LD50	Lethal Dose to 50% of a test population (Median Lethal Dose)
LOLI	LOLI (List of Lists - An International Chemical Regulatory Database)
MAK	Maximale Arbeitsplatz-Konzentration, a German expression corresponding to threshold limit value, which relates to safe daily exposure levels to chemical substances
NOAEL	NOAEL (No observed adverse effect level)
NOAEC	No observed adverse effect concentration
OSHA	OSHA (Occupational Safety and Health Administration of the US Department of Labour)
PEC	Predicted Effect Concentration
PNEC	Predicted No Effect Concentration (PNEC)
PBT	Persistent, Bioaccumulative, and Toxic (PBT) Chemicals
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals [Regulation (EC) No. 1907/2006])
RID	Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
RTECS	RTECS (Registry of Toxic Effects of Chemical Substances)
TWA	TWA (time-weighted average)
SKN*	Skin designation
SKN+	Skin sensitisation
STEL	STEL (Short Term Exposure Limit)
STOT	Specific Target Organ Toxicity
STOT RE	Specific target organ toxicity — repeated exposure
STOT SE	Specific target organ toxicity — single exposure
SVHC	Substances of Very High Concern
TLV	Threshold Limit Value
TRGS	Technical rules for hazardous substances, Germany
TSCA	Toxic Substances Control Act
UN	United Nations
vPvB	very persistent and very bioaccumulative
VOC	Volatile organic compounds
AwSV	Administrative regulation of water polluting substances, Germany

Key literature references and sources for data
See Section 11: TOXICOLOGICAL INFORMATION
See Section 12: ECOLOGICAL INFORMATION

Classification procedure

Classification according to Regulation (EC) No. 1272/2008 [CLP]	**Method Used**
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - Vapour	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	On basis of test data
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Skin sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	On basis of test data
Chronic aquatic toxicity	On basis of test data
Aspiration toxicity	Calculation method
Ozone	Calculation method

Training Advice	Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work
Restrictions on use	For Laboratory Use Only.

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

End of Safety Data Sheet