

Safety Data Sheet

According to Annex II to REACH - Regulation (EU) 2020/878 and to Annex II to UK REACH

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

1.1. Product identifier

Code: RX468
Product name: REDOX standard +468mV

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

Intended use: Standard solution for process verification and control. Applies to codes 32382933, 32383093, 32383163, EE32383163. EE51100353, EE51100373

Identified Uses	Industrial	Professional	Consumer
Standard solution for the verification and quality control of redox potential measurement systems.	✓	✓	-

1.3. Details of the supplier of the safety data sheet

Name: GIORGIO BORMAC srl
Full address: via della meccanica, 25
District and Country: 41012 Carpi Italia (MO)
Tel.: +39 059 653274
Fax: +39 059 653282

e-mail address of the competent person responsible for the Safety Data Sheet: sds@giorgiobormac.com

Supplier: GIORGIO BORMAC srl

1.4. Emergency telephone number

For urgent inquiries refer to: +44 121 507 4123

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2020/878.

Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

Eye irritation, category 2	H319	Causes serious eye irritation.
Skin irritation, category 2	H315	Causes skin irritation.

2.2. Label elements

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:



Signal words: Warning

Hazard statements:

RX468 - REDOX standard +468mV**SECTION 2. Hazards identification ... / >>**

H319 Causes serious eye irritation.
H315 Causes skin irritation.

Precautionary statements:

P280 Wear protective gloves/ protective clothing / eye protection / face protection.
P302+P352 IF ON SKIN: Wash with plenty of 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.
P332+P313 If skin irritation occurs: Get medical advice / attention.

2.3. Other hazards

On the basis of available data, the product does not contain any PBT or vPvB in percentage $\geq$ than 0,1%.

The product does not contain substances with endocrine disrupting properties in concentration $\geq$ 0.1%.

SECTION 3. Composition/information on ingredients**3.1. Substances**

Information not relevant

3.2. Mixtures

Contains:

Identification	x = Conc. %	Classification (EC) 1272/2008 (CLP)
SULPHURIC ACID		
INDEX 016-020-00-8	$8 \leq x < 10$	Skin Corr. 1A H314, Eye Dam. 1 H318, Classification note according to Annex VI to the CLP Regulation: B
EC 231-639-5		Skin Corr. 1A H314: $\geq 15\%$, Skin Irrit. 2 H315: $\geq 5\%$, Eye Dam. 1 H318: $\geq 15\%$, Eye Irrit. 2 H319: $\geq 5\%$
CAS 7664-93-9		
REACH Reg. 01-2119458838-20-XXXX		

The full wording of hazard (H) phrases is given in section 16 of the sheet.

SECTION 4. First aid measures

If exposed or if you feel unwell, contact a POISON CENTER or doctor. Show this safety data sheet to the doctor carrying out the examination.

4.1. Description of first aid measures

Contact with eyes: wash immediately with plenty of running water for at least 15 minutes, occasionally lifting the upper and lower eyelids.

Consult a doctor if irritation increases and persists.

Skin contact: Seek medical attention immediately. Wash the affected area thoroughly with plenty of water for at least 10 minutes and remove contaminated clothing. Contaminated clothing and shoes should be carefully washed before reuse.

Ingestion: Consult a doctor. Wash out mouth with plenty of water and give plenty of water to drink. Do not induce vomiting. Never give anything by mouth to an unconscious person.

Inhalation: Move the victim to fresh air immediately if adverse effects occur (e.g. dizziness, drowsiness or irritation of the respiratory tract). If he is not breathing, give artificial respiration or, if breathing is difficult, administer oxygen and consult a doctor. Do not use mouth-to-mouth resuscitation.

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

SULPHURIC ACID

The substance is seriously corrosive for the eyes, the mucous membranes and the parts of skin exposed

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

Consult a doctor immediately in case of contact with the substance.

SULPHURIC ACID

Useful urgent medical intervention

There may be delayed pulmonary edema up to 48 hours.

SECTION 5. Firefighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING MEANS

The extinguishing media are traditional ones: carbon dioxide, foam, powder and water spray if the containers are intact.

UNSUITABLE EXTINGUISHING MEANS

Direct water jets. Do not use water if product spills.

5.2. Special hazards arising from the substance or mixture

SULPHURIC ACID

The product is not flammable and does not support combustion. Go away from the containers and cool them with water from protected position. The product reacts with most metals producing explosive hydrogen gases and sulfur oxides. Sulfuric acid is promptly dissociated in water, composing in hydrated protons and sulfur ions.

5.3. Advice for firefighters

Protective means for fire-fighting personnel: gas masks with universal filter or self-contained breathing apparatus.

Special Fire Fighting Procedures: Water spray may be used to cool closed containers. Cool the containers by submerging them with plenty of water, continuing even after the flames have gone out. Avoid discharging runoff from extinguishing systems or dilutions into waterways, sewer systems or drinking water supplies. Non-flammable, but reacts with most metals to form flammable hydrogen gas.

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For those who intervene directly: Remove unnecessary personnel. Use the personal protective equipment recommended in section 8 of the safety data sheet.

For those who do not intervene directly: Remove unnecessary personnel. Contact local authorities if you cannot contain significant leaks. Stay upwind. Keep people away from the leak, upwind. Ventilate enclosed spaces before entering. Stay away from low-lying areas. Provide adequate ventilation. Use personal protective equipment recommended in section 8 of the safety data sheet.

6.2. Environmental precautions

Avoid further drips or leaks if it is possible to do so while respecting safety regulations. Do not contaminate groundwater and surface water. If the product has flowed into watercourses, immediately notify the competent authorities.

6.3. Methods and material for containment and cleaning up

Large spills: Stop the flow of material if this is possible without risk.

Use a non-combustible material (e.g. vermiculite, sand or earth) to absorb the product and place it in a container for later disposal. Form embankments well ahead of the spill to eliminate later.

Small spills: Absorb spilled product with suitable absorbent material. After removal, rinse the entire area thoroughly contaminated. Do not return spilled products to original containers for reuse. For disposal information, see section 13 of the SDS.

6.4. Reference to other sections

See section 8 (personal protective equipment) and section 13 (waste disposal).

SECTION 7. Handling and storage

7.1. Precautions for safe handling

During handling, use the protective means indicated in point 8 of this sheet and the procedures reported below: do not smoke, do not eat, do not drink during handling; use particular caution when handling, to avoid any exposure to the product. Provide accurate ventilation/extraction in the workplace; wash your hands thoroughly after handling and at the end of the shift; showering is advisable if handled in large quantities.

7.2. Conditions for safe storage, including any incompatibilities

When storing the preparation, use the following precautions:

- keep in mind the chemical-physical characteristics of the preparation to avoid possible interactions with other products
- keep the containers hermetically closed and in a cool, ventilated place, not exposed to direct sunlight.
- keep this material away from food, drinks and animal feed.

The product is stable but may be corrosive to metals.

7.3. Specific end use(s)

Industrial use.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Regulatory references:

DEU	Deutschland	Technischen Regeln für Gefahrstoffe (TRGS 900) - Liste der Arbeitsplatzgrenzwerte und Kurzzeitwerte. MAK- und BAT-Werte-Liste 2020, Ständige Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe, Mitteilung 56
ESP	España	Límites de exposición profesional para agentes químicos en España 2021
FRA	France	Valeurs limites d'exposition professionnelle aux agents chimiques en France. ED 984 - INRS
EU	OEL EU	Directive (EU) 2022/431; Directive (EU) 2019/1831; Directive (EU) 2019/130; Directive (EU) 2019/983; Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive (EU) 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 98/24/EC; Directive 91/322/EEC.
	TLV-ACGIH	ACGIH 2022

SULPHURIC ACID

Threshold Limit Value

Type	Country	TWA/8h mg/m3	ppm	STEL/15min mg/m3	ppm	Remarks / Observations
MAK	DEU	0,1		0,1		
VLA	ESP	1		3		
VLEP	FRA	0,05		3		THORA
OEL	EU	0,05				THORA
TLV-ACGIH		0,2		0,05		fnpl, A2, (M), (T)

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,0025	mg/l
Normal value in marine water	0,002	mg/l

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers		Chronic local	Chronic systemic	Effects on workers			
	Acute local	Acute systemic			Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation					0,1 mg/m3	0 mg/m3	0,05 mg/m3	0 mg/m3

Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.

VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified ; LOW = low hazard ; MED = medium hazard ; HIGH = high hazard.

SULPHURIC ACID

Sampling methods: https://amcaw.ifa.dguv.de/substance/methoden/097-sulphuric_acid_2016.pdf

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.

When choosing personal protective equipment, ask your chemical substance supplier for advice.

Personal protective equipment must be CE marked, showing that it complies with applicable standards.

ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

SULPHURIC ACID

Suitable technical checks: use adequate and effective ventilation. It is also of good practice to have an eye washing system and a safety shower near the storage or use of the material systems. The exposure scenarios include a job up to 360 days a year.

Respiratory protection: to prepare suction points (with air expulsion) where transfers of material takes place and in the other open points.

Download outside in a ventilated cabin with laminated air flow.

Automate activities where possible. Wearing acid vapor mask (Example DIN 3181 Abek)

Hand protection: anti-acid protection gloves (e.g. plastic, rubber) en374 marked.

Eye protection: use protective glasses against accidental penetration of liquids. Safety glasses.

Protection of the skin and bodies. Choose the most appropriate type according to the quantity and concentration of the substance of work.

Other control measures: manipulating respecting good industrial and safety hygiene. At work do not eat or drink. During work not smoking.

Wash your hands before the breaks and at the end of the working day.

Prepare adequate first aid actions before starting to work with this product.

RX468 - REDOX standard +468mV**SECTION 9. Physical and chemical properties****9.1. Information on basic physical and chemical properties**

Properties	Value	Information
Appearance	clear liquid	
Colour	green-brown	
Odour	not available	
Melting point / freezing point	not available	
Initial boiling point	> 100 °C	
Flammability	not applicable	
Lower explosive limit	not available	
Upper explosive limit	not available	
Flash point	not available	
Auto-ignition temperature	not available	
Decomposition temperature	not available	
pH	0,1	
Kinematic viscosity	not available	
Solubility	soluble in water	
Partition coefficient: n-octanol/water	not available	
Vapour pressure	not available	
Density and/or relative density	1,1	
Relative vapour density	not available	
Particle characteristics	not applicable	

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Information not available

9.2.2. Other safety characteristics

Explosive properties	not applicable
Oxidising properties	not applicable

SECTION 10. Stability and reactivity**10.1. Reactivity**

Stable under recommended storage and handling conditions.

SULPHURIC ACID

Reacts with: strong oxidizing agents, alkaline substances.

Iron ammonium sulphate oso

Easily oxidable in contact with the environment

10.2. Chemical stability

SULPHURIC ACID

Reacts with strong oxidant agents and alkaline substances (bases)

Ferrous ammonium sulphate ico

Releases water of crystallization when heated.

Iron ammonium sulphate oso

A strong heating leads to decomposition.

Release crystallization water when heated.

10.3. Possibility of hazardous reactions

SULPHURIC ACID

The product reacts with metals with highly flammable hydrogen development. The acid reacts violently with alkali with heat development, the same when water is added.

RX468 - REDOX standard +468mV**SECTION 10. Stability and reactivity ... / >>****10.4. Conditions to avoid**

Avoid any use that causes the formation of steam or splashes, unless there is adequate prior personal protection.

SULPHURIC ACID

Any use that involves the formation of aerosol or the release of steam greater than 0.05 mg/m³ where the workers are exposed, without using adequate respiratory protection. Any use with risk of sketches for the eyes / skin where workers are exposed, without adequate eyes / skin protections.

Ferrous ammonium sulphate ico

Sensitive to light.

Iron ammonium sulphate oso

Heating (decomposition).

10.5. Incompatible materials**SULPHURIC ACID**

Flammable substances, reducing substances, basic substances, metals, organic substances and water.

Ferrous ammonium sulphate ico

Strong oxidizing agents.

Iron ammonium sulphate oso

Concentrated sulfuric acid.

10.6. Hazardous decomposition products**SULPHURIC ACID**

By burning, it develops sulfur oxides.
Heated, it emits highly toxic fumes.

Ferrous ammonium sulphate ico

Sulfur oxides (SO_x), Ammonia, Nitrous gases.

Iron ammonium sulphate oso

Sulfoxides. Nitrogen oxides.

SECTION 11. Toxicological information**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**Metabolism, toxicokinetics, mechanism of action and other information**SULPHURIC ACID**

In the inhalation exposure, the effects depend on the size of the Aerosol particles (which determine the deposit site in the stretch respiratory), from the humidity of the environment and the respiratory tract (which determines the size of the particles), from the respiratory frequency and the ability of the respiratory tract buffer as well as their architecture.

In the human respiratory system, the ammonia produced can partially neutralize the acidity of the Aerosol and change the secretion of mucus. Mode

In breathing it influences the deposit of particles.

Whatever the size of the particles, in the presence of a breathing with the mouth, the dose deposited is greater in the larynx and

Upper trachea.

Sulfuric acid quickly dissociates itself in hydrogen ions and sulphate ions. The latter are incorporated into the body of the organism as electrolytes, the excess

is eliminated with the urine. The toxic effects are due to the hydrogen ion that changes the pH locally.

Information on likely routes of exposure**SULPHURIC ACID**

The main potential exposure routes are inhalation, skin contact and ingestion.

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

Exposure to vapors or aerosols of substance translates with symptoms of irritation of eyes, skin and respiratory tract. Gravity is in part a function of

of concentration, the duration of the exposure, the dimension of inhaled particles and the ambient humidity rate.

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SECTION 11. Toxicological information ... / >>

In cases of moderate gravity there are nasal irritation, eyes, throat, painful chest oppression, coughing and breathing difficulties.

Principal

Complication is delayed pulmonary edema that can manifest itself within 48 hours of exposure and can be unleashed or worsening with physical effort.

The infectious complications are frequent.

In the case of massive exhibitions you can have: bronchospasm, laryngeal edema and acute respiratory failure that can quickly evolve in shock

with death from cardio-respiratory failure.

Sequels are chronic respiratory failure that follows serious intoxication and in relation to injuries such as: obliterating bronchiolitis, emphysema or fibrosis.

Another complication can be hyposmia or anosmia associated with chronic rhinitis.

The ingestion of a concentrated solution causes serious caustic lesions of the digestive streets. You have gold-fooling pain, sterrumous and epigastric back, dysphagia,

Hypersiaclorrhoea and often bloodthirsty vomiting. This symptomatology can be associated with respiratory symptoms for laryngeal edema or pneumopathy from

inhalation. The tissue necrosis involves hydroelectrolytic disorders, metabolic acidosis, hyperleucocytosis, emolisi, increased tissue enzymes and sometimes one

Consumer Coagulopathy.

In the first week the possible complications are: a digestive perforation, a digestive bleeding, the state of shock and infectious complications. The main ones

Long -term complications are the canceration of scarring lesions.

Interactive effects

Information not available

ACUTE TOXICITY

ATE (Inhalation) of the mixture:

Not classified (no significant component)

ATE (Oral) of the mixture:

Not classified (no significant component)

ATE (Dermal) of the mixture:

Not classified (no significant component)

SULPHURIC ACID

LD50 (Oral):

2140 mg/kg Rat (OECD dato calcolato)

LC50 (Inhalation mists/powders):

375 mg/m3 aerosol

Iron ammonium sulphate oso

LD50 (Oral):

3250 mg/kg ratto

SULPHURIC ACID

Sulfuric acid causes serious irritation to the eyes, the membranes of the mucous membranes and the exposed parts of the skin.

Data on substance in aerosol:

LC50: (rat) 375 mg/m3

LC50 (mouse - 4 hours of exposure): 0.85 mg/L Aria

LC50 (mouse - 8 hours of exposure): 0.60 mg/L Aria

LC50 (rabbit - 7 hours of exposure): 1.61 mg/L Aria

Data on steam substance:

LC50: (rat - 2 hours of exposure): 0, 51 mg/L Aria

LC50 (mouse - 2 hours of exposure): 0, 32 mg/L Aria.

SKIN CORROSION / IRRITATION

Causes skin irritation

SULPHURIC ACID

Direct contact of the skin with a concentrated solution of sulfuric acid (pH <2) involves caustic lesions the more severe the more time contact has been prolonged and the concentration is high.

Clinically there is erythema, pain and localized edema followed by flops, areas of necrosis and ulcers if you do not proceed promptly to one

decontamination. The lesions can be infected and can reflect functional scars and sequences.

Corrosion for the respiratory tract

The concentrated substance, at relevant doses, has caustic power.

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye irritation

SECTION 11. Toxicological information ... / >>**SULPHURIC ACID**

At the ocular level, the substance causes burns that occur clinically with immediate pain, tearing, conjunctive hyperemia, local edema, Blefarospasm. The substance, unlike the strong bases that spread rapidly in depth, causes rapid necrosis of the surface tissues and this

Limit the penetration into deep fabrics.

In case of prolonged contact with very concentrated solutions, the lesions affect the iris and the crystalline.

Possible complications are cataract, glaucoma, corneal opacity, heads of the eyelids and also blindness.

RESPIRATORY OR SKIN SENSITISATION

Does not meet the classification criteria for this hazard class

Respiratory sensitization**SULPHURIC ACID**

The inhalation of substance can cause Brooks syndrome (irritating asthma).

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

SULPHURIC ACID

In Vitro provided negative results in the essay of Ames with or without metabolic activation.

Positive responses are reported in other essays, but are considered the consequence of the change of pH produced by the substance.

There are no studies in vivo.

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

SULPHURIC ACID

In a recent evaluation, the data showed association between exposure to mists of strong inorganic acids and laryngeal cancer in the man while they are

Limited results to affirm a causal association with bronchial cancer. The man was also observed in the positive association between exposure to

Strong inorganic acid mists and lung cancer (Iarc, 2012).

In the literature there are no studies on animals.

- The International Agency for Research on Cancer (IARC) allocates the mists of strong inorganic acids in group 1 (carcinogen ascertained for man), on

basis of evidence of sufficient carcinogenicity in humans (cancer against the larynx and positive association between exposure to mists of inorganic acids

Strong and lung cancer) (IARC, 2012).

The US National Toxicology Program (NTP) lists the mists of strong inorganic acids containing sulfuric acid in the thirteenth report on the carcinogens

allocating them in the category of carcinogenic recognized for man. (US DHHS, 2014).

REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

Adverse effects on development of the offspring**SULPHURIC ACID**

The substance, in the light of current knowledge, does not appear to have toxicity on development.

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

SULPHURIC ACID

Long -term exhibitions with weak concentrations of sulfuric acid cause dental erosions.

Repeated contacts to weak concentrations of substance solutions can cause contact dermatitis.

In exposed workers, signs of nasal irritation (metaplasia, dysplasia, atypia of the nasal mucosa) and chronic bronchitis are reported.

In animals, the repeated exposure to sulfuric acid shows great variability in the response according to the species and the effect studied. Toxic effects

However, in all cases, caused by local irritation, there are no systemic effect. (By, 2010).

STOT - REPEATED EXPOSURE

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SECTION 11. Toxicological information ... / >>

Does not meet the classification criteria for this hazard class

SULPHURIC ACID

Long -term exhibitions cause dental erosions.

Repeated contacts to weak concentrations of substance solutions can cause contact dermatitis.

In exposed workers, signs of nasal irritation (metaplasia, dysplasia, atypia of the nasal mucosa) and chronic bronchitis are reported.

Repeated dose toxicity:

Inhalation: Sub-Cronic-The Noaec is 150 ppm for rats/mice, 30-90 days, 12-23.5 hours/day;

Chronic - The Noec is 10 mg/m3 for rats/mice, 6 mese, 6 hours/day, 5 days/week.

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

11.2. Information on other hazards

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with human health effects under evaluation.

SECTION 12. Ecological information

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation.

12.1. Toxicity

Iron ammonium sulphate oso

Ce50/48h 315 mg/l (fish) (Fundulus Hetericlitus)

SULPHURIC ACID

LC50 - for Fish

> 16 mg/l/96h 16-28 mg/l (pH 3.25-3.5)

EC50 - for Crustacea

> 100 mg/l/48h (OECD 202)

EC50 - for Algae / Aquatic Plants

> 100 mg/l/72h

Chronic NOEC for Fish

0,025 mg/l

Chronic NOEC for Crustacea

0,15 mg/l Daphnia magna

12.2. Persistence and degradability

SULPHURIC ACID

Test not executable as the substance is inorganic, nor does it be expected that normal use can lead to a significant release of the substance at sea.

Iron ammonium sulphate oso

Rapidly degradable

12.3. Bioaccumulative potential

SULPHURIC ACID

It is not significant as the substance is inorganic.

Iron ammonium sulphate oso

It does not accumulate in organisms.

12.4. Mobility in soil

SULPHURIC ACID

With regard to terrestrial mobility it should not be relevant. If in contact with the ground, the absorption by land particles is negligible.

Depending on the buffer capacity of the soil, the H⁺ ions will be neutralized in the water of the pores of the soil with an organic or inorganic substance or the pH can decrease.

12.5. Results of PBT and vPvB assessment

SULPHURIC ACID

Evaluation on persistence. The substance can be considered as non -biodegradable for the aquatic and terrestrial environment. The test results indicate that the substance is persistent (half -life in marine water> 60 days, in the soil> 120 days). Therefore the criteria for the P. evaluation on bioaccumulation are satisfied. The substance is considered cationic to environmental pH levels, the Log Kow has been calculated on a value of - 1. Following the guide to Annex VIII this value does not involve any bioaccumulation potential.

SECTION 12. Ecological information ... / >>

Based on the available data, the product does not contain PBT or VPVB substances as a percentage $\geq 0.1\%$.

On the basis of available data, the product does not contain any PBT or vPvB in percentage $\geq$ than 0,1%.

12.6. Endocrine disrupting properties**SULPHURIC ACID**

For the aquatic environment, the effects of sulfuric acid are clearly attributable to the effect of the pH, as acid is completely dissociated in ions. The same substance, therefore, will not reach the setting/terrestrial environment.

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with environmental effects under evaluation.

12.7. Other adverse effects

Information not available

SECTION 13. Disposal considerations**13.1. Waste treatment methods**

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

Waste transportation may be subject to ADR restrictions.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

SECTION 14. Transport information**14.1. UN number or ID number**

ADR / RID, IMDG, IATA: 2796

14.2. UN proper shipping name

ADR / RID: SULPHURIC ACID or BATTERY FLUID, ACID

IMDG: SULPHURIC ACID or BATTERY FLUID, ACID

IATA: SULPHURIC ACID or BATTERY FLUID, ACID

14.3. Transport hazard class(es)

ADR / RID: Class: 8 Label: 8

IMDG: Class: 8 Label: 8

IATA: Class: 8 Label: 8

**14.4. Packing group**

ADR / RID, IMDG, IATA: II

14.5. Environmental hazards

ADR / RID: NO

IMDG: NO

IATA: NO

RX468 - REDOX standard +468mV**SECTION 14. Transport information ... / >>****14.6. Special precautions for user**

ADR / RID:	HIN - Kemler: 80	Limited Quantities: 1 L	Tunnel restriction code: (E)
	Special provision: -		
IMDG:	EMS: F-A, S-B	Limited Quantities: 1 L	
IATA:	Cargo:	Maximum quantity: 30 L	Packaging instructions: 855
	Passengers:	Maximum quantity: 1 L	Packaging instructions: 851
	Special provision:	-	

14.7. Maritime transport in bulk according to IMO instruments

Information not relevant

SECTION 15. Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**Seveso Category - Directive 2012/18/EU: NoneRestrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006Product

Point 3

Contained substance

Point 75

Regulation (EU) 2019/1148 - on the marketing and use of explosives precursors

Regulated explosives precursor

The acquisition, introduction, possession or use of that regulated explosives precursor by members of the general public is subject to reporting obligations as set out in Article 9.

All suspicious transactions and significant disappearances and thefts must be reported to the relevant national contact point.

Substances in Candidate List (Art. 59 REACH)On the basis of available data, the product does not contain any SVHC in percentage $\geq$ than 0,1%.Substances subject to authorisation (Annex XIV REACH)

None

Substances subject to exportation reporting pursuant to Regulation (EU) 649/2012:

None

Substances subject to the Rotterdam Convention:

None

Substances subject to the Stockholm Convention:

None

Healthcare controls

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

15.2. Chemical safety assessmentA chemical safety assessment has been performed for the following contained substances
SULPHURIC ACID**SECTION 16. Other information**

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

Skin Corr. 1A	Skin corrosion, category 1A
Eye Irrit. 2	Eye irritation, category 2
Skin Irrit. 2	Skin irritation, category 2
H314	Causes severe skin burns and eye damage.
H319	Causes serious eye irritation.
H315	Causes skin irritation.

LEGEND:

- ADR: European Agreement concerning the carriage of Dangerous goods by Road

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SECTION 16. Other information ... / >>

- ATE: Acute Toxicity Estimate
- CAS: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE: Identifier in ESIS (European archive of existing substances)
- CLP: Regulation (EC) 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: Regulation (EC) 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY

1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 2020/878 (II Annex of REACH Regulation)
4. Regulation (EC) 790/2009 (I Atp. CLP) of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
12. Regulation (EU) 2016/1179 (IX Atp. CLP)
13. Regulation (EU) 2017/776 (X Atp. CLP)
14. Regulation (EU) 2018/669 (XI Atp. CLP)
15. Regulation (EU) 2019/521 (XII Atp. CLP)
16. Delegated Regulation (UE) 2018/1480 (XIII Atp. CLP)
17. Regulation (EU) 2019/1148
18. Delegated Regulation (UE) 2020/217 (XIV Atp. CLP)
19. Delegated Regulation (UE) 2020/1182 (XV Atp. CLP)
20. Delegated Regulation (UE) 2021/643 (XVI Atp. CLP)
21. Delegated Regulation (UE) 2021/849 (XVII Atp. CLP)
22. Delegated Regulation (UE) 2022/692 (XVIII Atp. CLP)

- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- IFA GESTIS website
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health

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and safety laws and regulations. The producer is relieved from any liability arising from improper uses.
Provide appointed staff with adequate training on how to use chemical products.

CALCULATION METHODS FOR CLASSIFICATION

Chemical and physical hazards: Product classification derives from criteria established by the CLP Regulation, Annex I, Part 2. The data for evaluation of chemical-physical properties are reported in section 9.

Health hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 3, unless determined otherwise in Section 11.

Environmental hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 4, unless determined otherwise in Section 12.

Changes to previous review:

The following sections were modified:

03 / 04 / 05 / 06 / 07 / 08 / 10.