



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

1.1. Product identifier

Sulfuric Acid

REACH Registration Number: 01-2119458838-20-XXXX

CAS No: 7664-93-9

Index No: 016-020-00-8

EC No: 231-639-5

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

Use of the substance/mixture

Battery acid

Sulfuric acid as a explosives precursor is subject to restriction as per Regulation (EU) 2019/1148.

Owing to this regulation, as of 1 February 2021 it will be prohibited to supply a dry charged battery with a separate acid pack to members of the general public. The acid must therefore be filled into the battery before being made available to members of the general public.

Uses advised against

There is no information available on applications that are not advised.

1.3. Details of the supplier of the safety data sheet

Company name: Robert Bosch GmbH
Automotive Aftermarket

Post-office box: 41 09 60
D-76227 Karlsruhe

Telephone: +49 721-942-0

Responsible Department: Responsible for the safety data sheet: sds@gbk-ingelheim.de

1.4. Emergency telephone number: INTERNATIONAL: +49 - (0) 6132 - 84463, GBK GmbH (24h - 7d/w - 365d/a)
In England and Wales: NHS 111 In Scotland: NHS 24 - dial 111

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture according to 1272/2008/EC

Hazard categories:

Substance or mixture corrosive to metals: Met. Corr. 1

Skin corrosion/irritation: Skin Corr. 1A

Serious eye damage/eye irritation: Eye Dam. 1

Hazard Statements:

May be corrosive to metals.

Causes severe skin burns and eye damage.

Causes serious eye damage.

2.2. Label elements

Hazard components for labelling

Sulphuric acid

Signal word:

Danger

Pictograms:



Hazard statements

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.



**Precautionary statements**

- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
 P264 Wash hands thoroughly after handling.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
 P363 Wash contaminated clothing before reuse.

2.3. Other hazards

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

SECTION 3: Composition/information on ingredients**3.1. Substances****Hazardous components**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	GHS Classification			
7664-93-9	Sulphuric acid			37 - 44 %
	231-639-5	016-020-00-8	01-2119458838-20-0000	
	Met. Corr. 1, Skin Corr. 1A, Eye Dam. 1; H290 H314 H318			

Full text of H and EUH statements: see section 16.

SECTION 4: First aid measures**4.1. Description of first aid measures****General information**

Remove and wash contaminated clothes before re-use.

If you feel unwell, seek medical advice.

First aider: Pay attention to self-protection!

After inhalation

Remove the casualty into fresh air and keep him immobile.

Keep warm and calm injured person.

If patient is not breathing, apply artificial respiration.

In case of the person being unconscious put him/her in a stable side position.

Call a physician immediately.

Maintain an open airway.

After contact with skin

Wash off immediately with plenty of water for at least 15 minutes.

Call a physician immediately. Immediate medical treatment necessary, as untreated burns can result in slow-healing wounds.

Remove contaminated clothing immediately, even underwear and shoes.

Wash contaminated clothing prior to re-use.

After contact with eyes

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.

Consult (eye) doctor immediately.

After ingestion

Rinse out mouth and give plenty of water to drink.

Do not induce vomiting.

Never give anything by mouth to an unconscious person.

Call a physician immediately.

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

Causes severe skin burns and eye damage.





After ingestion: Danger of perforation of the gullet and of the stomach.

After contact with eyes: May cause blindness.

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

Treat symptoms.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Foam, carbon dioxide (CO₂), dry chemical, water-spray.

Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixture

Fire may produce: sulfur oxides.

Heating will cause pressure rise with risk of bursting.

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit.

Cool containers at risk with water spray jet.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective clothing.

Avoid contact with skin, eyes and clothing.

Do not breathe vapours.

Ensure adequate ventilation.

Do not touch or walk through spilt material.

Keep away noninvolved persons.

6.2. Environmental precautions

Do not discharge into the drains/surface waters/ground water.

Do not discharge into the subsoil/soil.

Inform competent authority about release into the sewage, ground or into waters.

6.3. Methods and material for containment and cleaning up

For small quantities:

Stop leak if safe to do so.

Move container from spill area.

Dilute with water.

Take up with absorbent material.

Take up mechanically and collect in suitable container for disposal.

Waste disposal according to local regulations.

Large quantities:

Stop leak if safe to do so.

Move container from spill area.

Take up with absorbent material.

Take up mechanically and collect in suitable container for disposal.

Waste disposal according to local regulations.

The spilled material may be neutralised with: Sodium carbonate, Sodium bicarbonate, Sodium hydroxide.

6.4. Reference to other sections

Information for safe handling look up section 7.

Information for personal protective equipment look up chapter 8.

Information for disposal see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling



**Advice on safe handling**

Wear protective clothing.

When using do not eat, drink or smoke.

Wash hands and skin before breaks and after work.

Avoid contact with skin, eyes and clothing.

Do not breathe vapour. Do not ingest.

Close product container immediately after each use.

Empty containers can contain product residue and can be dangerous.

Advice on protection against fire and explosion

Usual measures for fire prevention.

7.2. Conditions for safe storage, including any incompatibilities**Requirements for storage rooms and vessels**

Keep only in original container.

To be kept tightly closed, in a cool and dry place.

Protect from sun.

Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

Hints on joint storage

Keep away from: alkalis.

Keep away from food, drink and animal feeding stuffs.

7.3. Specific end use(s)

Battery acid

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****Exposure limits (EH40)**

CAS No	Substance	ppm	mg/m ³	fibres/ml	Category	Origin
7664-93-9	Sulphuric acid (mist)	-	0.05		TWA (8 h)	WEL

8.2. Exposure controls**Appropriate engineering controls**

Ensure adequate ventilation, especially in confined areas.

Protective and hygiene measures

Wash hands before breaks and at the end of workday.

When using do not eat, drink or smoke.

Remove and wash contaminated clothes before re-use.

Avoid contact with skin, eyes and clothing.

Eye/face protection

Tightly fitting goggles (EN 166).

Provide eye bath.

Hand protection

Chemical-resistant gloves (EN 374)

Also suitable are gloves made of: Fluorocarbon rubber.

Requirements can vary as a function of the use. Therefore it is necessary to adhere additionally to the recommendations given by the manufacturer of protective gloves.

Skin protection

Acid-proof protective clothing.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

Suitable respiratory protection apparatus: Multi-purpose filter ABEK, Self-contained respirator (breathing apparatus) (DIN EN 133).



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

Physical state:	Liquid	
Colour:	Colourless	
Odour:	Odourless	
pH-Value (at 20 °C):	< 1	
Changes in the physical state		
Melting point:	The melting point varies with the acid strength.	*)
Initial boiling point and boiling range:	The boiling point varies with the acid strength.	**)
Flash point:	n.a.	
Sustaining combustion:	Not sustaining combustion	
Flammability	n.a.	
Explosive properties	The product is not explosive.	
Lower explosion limits:	n.a.	
Upper explosion limits:	n.a.	
Ignition temperature:	n.a.	
Auto-ignition temperature	n.a.	
Decomposition temperature:	n.d.	
Oxidizing properties	Not fire-promoting.	
Vapour pressure: (at 20 °C)	0,06 hPa	***)
Density:	approx. 1,835 g/cm ³	****)
Bulk density:	n.a.	
Water solubility:	Miscible	
Solubility in other solvents	No information available.	
Partition coefficient:	Not relevant.	
Viscosity / dynamic: (at 20 °C)	22,5 (Solution, 95%) mPa·s	
Viscosity / kinematic:	n.d.	
Flow time:	n.d.	
Vapour density:	n.d.	
Evaporation rate:	n.d.	
Solvent separation test:	0 %	
Solvent content:	0 %	

9.2. Other information

*) Literary value: 100%: 10,4 - 10,94 °C; 83%: 7,56 °C.

**) 100%: 290 °C.

***) Aqueous solution, 90%.

****) The density of sulfuric acid varies with the concentration. 93-100%: approx. 1,835 g/ml.

This substance is not expected to be surface active.

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

Reactions with metals, with evolution of hydrogen.

Extremely flammable hydrogen can form explosive mixtures with air.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions



Reactions with metals, with evolution of hydrogen.
Extremely flammable hydrogen can form explosive mixtures with air.
Exothermic reaction with strong bases.

10.4. Conditions to avoid

No information available.

10.5. Incompatible materials

bases

Metals

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

Fire may produce: sulfur oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

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

Irritation and corrosivity

Causes severe skin burns and eye damage.

Causes serious eye damage.

Sensitising effects

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

STOT-single exposure

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

Severe effects after repeated or prolonged exposure

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

Carcinogenic/mutagenic/toxic effects for reproduction

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

Aspiration hazard

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

Additional information on tests

Classification in compliance with the assessment procedure specified in the Regulation (EC) no 1272/2008.

Practical experience

Other observations

After ingestion: Danger of perforation of the gullet and of the stomach.

After contact with eyes: May cause blindness.

SECTION 12: Ecological information

12.1. Toxicity

This substance is not classified as hazardous to the aquatic environment.

12.2. Persistence and degradability

Sulphuric acid is a simple inorganic substance, which will not biodegrade.

The substance dissociates readily in water and is totally miscible with water.

The hydrogen ions will react with and be neutralised by (OH) to form water.

The sulphate ions are incorporated into the various mineral species present in the environment.

12.3. Bioaccumulative potential

Sulphuric acid is a strong mineral acid (pKa= 1.92) that dissociates readily in water to hydrogen ions and sulphate ions (at environmentally relevant pH) and is totally miscible with water.

The resulting hydrogen ions and sulphate ions are naturally present in water/sediment and no bioaccumulation of these ions is predicted.

12.4. Mobility in soil

Sulphuric acid is a strong mineral acid (pKa= 1.92) that dissociates readily in water to hydrogen ions





and sulphate ions (at environmentally relevant pH) and is totally miscible with water. The resulting hydrogen ions and sulphate ions are naturally present in water/sediment. The hydrogen ions will contribute to local pH and are potentially mobile. Sulphate ions may be incorporated into naturally occurring mineral species.

12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6. Other adverse effects

Low hazard to waters.

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

Where possible recycling is preferred to disposal.

Disposal in accordance with local regulations.

The waste code number must be agreed with the disposer / manufacturer / competent authority.

Contaminated packaging

Packaging that cannot be cleaned should be disposed of like the product.

Disposal in accordance with local regulations.

SECTION 14: Transport information**Land transport (ADR/RID)**

14.1. UN number:	UN 2796
14.2. UN proper shipping name:	Sulphuric acid
14.3. Transport hazard class(es):	8
14.4. Packing group:	II
Hazard label:	8



Classification code:	C1
Limited quantity:	1 L / 30 kg
Excepted quantity:	E2
Transport category:	2
Hazard No:	80
Tunnel restriction code:	E

Inland waterways transport (ADN)

14.1. UN number:	UN 2796
14.2. UN proper shipping name:	Sulphuric acid
14.3. Transport hazard class(es):	8
14.4. Packing group:	II
Hazard label:	8



Classification code:	C1
Limited quantity:	1 L / 30 kg
Excepted quantity:	E2

Marine transport (IMDG)

14.1. UN number:	UN 2796
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**14.2. UN proper shipping name:** Sulphuric acid**14.3. Transport hazard class(es):** 8**14.4. Packing group:** II

Hazard label: 8



Marine pollutant: No

Limited quantity: 1 L / 30 kg

Excepted quantity: E2

EmS: F-A, S-B

Air transport (ICAO-TI/IATA-DGR)**14.1. UN number:** UN 2796**14.2. UN proper shipping name:** Sulphuric acid**14.3. Transport hazard class(es):** 8**14.4. Packing group:** II

Hazard label: 8



Limited quantity Passenger: 0.5 L

Passenger LQ: Y840

Excepted quantity: E2

IATA-packing instructions - Passenger: 851

IATA-max. quantity - Passenger: 1 L

IATA-packing instructions - Cargo: 855

IATA-max. quantity - Cargo: 30 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Take the usual precautions when handling with chemicals.

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

The transport takes place only in approved and appropriate packaging.

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulatory information****Additional information**

Sulfuric acid as a explosives precursor is subject to restriction as per Regulation (EU) 2019/1148. Owing to this regulation, as of 1 February 2021 it will be prohibited to supply a dry charged battery with a separate acid pack to members of the general public. The acid must therefore be filled into the battery before being made available to members of the general public.

National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Water hazard class (D): 1 - slightly hazardous to water





15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 1.

Changes in section: 1.1, 2.2, 3.2

Abbreviations and acronyms

ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route

RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses

ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure

IMDG = International Maritime Code for Dangerous Goods

IATA/ICAO = International Air Transport Association / International Civil Aviation Organization

MARPOL = International Convention for the Prevention of Pollution from Ships

IBC-Code = International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

REACH = Registration, Evaluation, Authorization and Restriction of Chemicals

CAS = Chemical Abstract Service

EN = European norm

ISO = International Organization for Standardization

DIN = Deutsche Industrie Norm

PBT = Persistent Bioaccumulative and Toxic

vPvB = Very Persistent and very Bio-accumulative

LD = Lethal dose

LC = Lethal concentration

EC = Effect concentration

IC = Median immobilisation concentration or median inhibitory concentration

Relevant H and EUH statements (number and full text)

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

Further Information

Data of items 4 to 8, as well as 10 to 12, do partly not refer to the use and the regular employing of the product (in this sense consult information on use and on product), but to liberation of major amounts in case of accidents and irregularities.

The information describes exclusively the safety requirements for the product(s) and is based on the present level of our knowledge.

The delivery specifications are contained in the corresponding product sheet.

This data does not constitute a guarantee for the characteristics of the product(s) as defined by the legal warranty regulations.

(n.a. = not applicable; n.d. = not determined)

