

Sulfuric acid

Safety Data Sheet

according to Regulation (EU) 2015/830

Date of issue: 05/04/2017 Version: 0.0

Doc No: SDS-970.023/1



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

1.1. Product identifier

Product name : Sulfuric acid
Product form : Substance
EC Index-No. : 016-020-00-8
EC-No. : 231-639-5
CAS-No. : 7664-93-9
Type of product : Pure substance
Formula : H2O4S

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Industrial use
Laboratory chemical

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

ISOLAB Laborgeräte GmbH
Am Dillhof 2 - 63863 Eschau / GERMANY
Tel: + 49 93 74 / 978 55-0
Fax: +49 93 74 / 978 55-29
prodsafe@isolab.de

1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Comment
Germany	Giftnotruf der Charité CBF, Haus VIII (Wirtschaftsgebäude), UG	Hindenburgdamm 30 12203 Berlin	+49 30 19240	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Skin Corr. 1A H314

Met. Corr. 1 H290

Full text of hazard classes and H-statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS05

Signal word (CLP) : Danger

Hazard statements (CLP) : H290 - May be corrosive to metals.
H314 - Causes severe skin burns and eye damage

Precautionary statements (CLP) : P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
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 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

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2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Sulphuric acid	(CAS-No.) 7664-93-9 (EC-No.) 231-639-5 (EC Index-No.) 016-020-00-8	>= 50.00 - <= 100.00 %	Skin Corr. 1A, H314 Met. Corr. 1, H290

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.
First-aid measures after inhalation	: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
First-aid measures after skin contact	: Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.
First-aid measures after eye contact	: Rinse immediately with plenty of water for 15 minutes. Do not apply neutralizing agents. Take victim to an ophthalmologist.
First-aid measures after ingestion	: Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Give milk to drink. Do not induce vomiting. Do not give activated charcoal. Do not give chemical antidote. Immediately consult a doctor/medical service. Call Poison Information Centre (www.big.be/antigif.htm). Ingestion of large quantities: immediately to hospital. Take the container/vomit to the doctor/hospital. Doctor: gastric lavage.

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

Symptoms/effects after inhalation	: Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. ON CONTINUOUS EXPOSURE/CONTACT: Corrosion of the upper respiratory tract. FOLLOWING SYMPTOMS MAY APPEAR LATER: Possible laryngeal spasm/oedema. Risk of pneumonia. Risk of lung oedema. Respiratory difficulties.
Symptoms/effects after skin contact	: Caustic burns/corrosion of the skin.
Symptoms/effects after eye contact	: Corrosion of the eye tissue. Permanent eye damage.
Symptoms/effects after ingestion	: Nausea. Abdominal pain. Blood in stool. Blood in vomit. Burns to the gastric/intestinal mucosa. AFTER ABSORPTION OF HIGH QUANTITIES: Shock.
Chronic symptoms	: ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Red skin. Dry skin. Itching. Skin rash/inflammation. Affection/discolouration of the teeth. Inflammation/damage of the eye tissue.

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

No additional information available

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

Unsuitable extinguishing media : EXTINGUISHING MEDIA FOR SURROUNDING FIRES: Water.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: DIRECT FIRE HAZARD. Non combustible. INDIRECT FIRE HAZARD. Reactions involving a fire hazard: see "Reactivity Hazard".
Explosion hazard	: INDIRECT EXPLOSION HAZARD. Reactions with explosion hazards: see "Reactivity Hazard".

5.3. Advice for firefighters

Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: seal off low-lying areas. Exposure to fire/heat: have neighbourhood close doors and windows.

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Firefighting instructions	: Cool tanks/drums with water spray/remove them into safety. When cooling/extinguishing: no water in the substance. Dilute toxic gases with water spray.
Protection during firefighting	: Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment	: Gloves. Face-shield. Corrosion-proof suit. Large spills/in enclosed spaces: compressed air apparatus. Large spills/in enclosed spaces: gas-tight suit. See "Material-Handling" to select protective clothing.
Emergency procedures	: Mark the danger area. No naked flames. Keep containers closed. Avoid ingress of water in the containers. Wash contaminated clothes. Large spills/in confined spaces: consider evacuation. In case of hazardous reactions: keep upwind. In case of reactivity hazard: consider evacuation. On contact with moisture/water: keep upwind. On contact with moisture/water: consider evacuation.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment	: Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the liquid spill. Hazardous reaction: measure explosive gas-air mixture. Reaction: dilute combustible gas/vapour with water curtain. Take account of toxic/corrosive precipitation water. Heat exposure: dilute toxic gas/vapour with water spray.
Methods for cleaning up	: Take up liquid spill into dry absorbent material e.g.: dry sand/earth/vermiculite. Scoop absorbed substance into closing containers. Neutralize small quantities of the liquid spill with lime, sodium bicarbonate, soda (sodium carbonate) or soda ash. Neutralized substance: wash down with an excess of water. See "Material-handling" for suitable container materials. Carefully collect the spill/leftovers. Damaged/cooled tanks must be emptied. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Keep the substance free from contamination. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Never add water to this product. Never dilute by pouring water to the acid. Always add the acid to the water. Keep away from naked flames/heat. Avoid contact of substance with water. Observe very strict hygiene - avoid contact. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.
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7.2. Conditions for safe storage, including any incompatibilities

Storage temperature	: No restrictions
Heat and ignition sources	: KEEP SUBSTANCE AWAY FROM: heat sources.
Information on mixed storage	: KEEP SUBSTANCE AWAY FROM: combustible materials. reducing agents. (strong) bases. highly flammable materials. metals. cellulosic materials. organic materials. alcohols. amines. oxidizing agents. water/moisture.
Storage area	: Store in a dry area. Ventilation at floor level. Keep locked up. Protect against frost. Store at ambient temperature. Provide for a tub to collect spills. Unauthorized persons are not admitted. Under a shelter/in the open. Aboveground. Store only in a limited quantity. Meet the legal requirements.
Special rules on packaging	: SPECIAL REQUIREMENTS: closing. clean. dry. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials	: SUITABLE MATERIAL: carbon steel. stainless steel. polyethylene. polypropylene. glass. stoneware/porcelain. MATERIAL TO AVOID: copper. zinc. nickel.

7.3. Specific end use(s)

No additional information available

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Sulfuric acid		
EU	Local name	Sulphuric acid (mist)
EU	IOELV TWA (mg/m ³)	0.05 mg/m ³
Austria	Local name	Schwefelsäure
Austria	MAK (mg/m ³)	0.1 mg/m ³
Austria	MAK Short time value (mg/m ³)	0.2 mg/m ³
Belgium	Local name	Acide sulfurique # Zwavelzuur
Belgium	Limit value (mg/m ³)	1 mg/m ³
Belgium	Short time value (mg/m ³)	3 mg/m ³
Bulgaria	Local name	Сярна киселина
Bulgaria	OEL TWA (mg/m ³)	0.05 mg/m ³ аерозоли
Bulgaria	Notes	• (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност); (2) При избора на подходящ метод за наблюдение на експозицията следва да се вземат под внимание потенциалните ограничения и взаимодействия, които могат да възникнат в присъствието на други серни съединения; (3) Аерозолът се определя като вдишвана част
Croatia	Local name	Sumporna kiselina
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	0.05 mg/m ³
Croatia	Naznake (HR)	C (nagrizajuće); EU*** (naznaka da se radi o tvarima za koje su utvrđene indikativne granične vrijednosti izloženosti prema Direktivi 2009/161/ EU (treća lista))
Czech Republic	Local name	Kyselina sírová, jako SO
Czech Republic	Expoziční limity (PEL) (mg/m ³)	1 mg/m ³
Czech Republic	Expoziční limity (NPK-P) (mg/m ³)	2 mg/m ³
Denmark	Local name	Svovlsyre
Denmark	Grænseværdie (langvarig) (mg/m ³)	0.05 mg/m ³
Estonia	Local name	Väävelhape, udu
Estonia	OEL TWA (mg/m ³)	0.05 mg/m ³
Finland	Local name	Rikkihappo
Finland	HTP-arvo (8h) (mg/m ³)	0.05 mg/m ³
Finland	HTP-arvo (15 min)	0.1 mg/m ³
Finland	Huomautus (FI)	torakaalijae
France	Local name	Acide sulfurique
France	VME (mg/m ³)	0.05 mg/m ³ (fraction thoracique)
France	VLE (mg/m ³)	3 mg/m ³ (fraction thoracique)
France	Note (FR)	VME réglementaire indicative; VLE recommandée/admise
Germany	Local name	Schwefelsäure
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	0.1 mg/m ³ E (mg/m ³)
Germany	Remark (TRGS 900)	DFG,EU,Y
Greece	OEL TWA (mg/m ³)	1 mg/m ³
Hungary	Local name	KÉNSAV
Hungary	AK-érték	0.05 mg/m ³
Hungary	Megjegyzések (HU)	m; l.
Ireland	Local name	Sulphuric acid
Ireland	OEL (8 hours ref) (ppm)	0.05 ppm
Ireland	Notes (IE)	IOELV
Italy	Local name	Acido solforico (nebulizzazione)

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Italy	OEL TWA (mg/m ³)	0.05 mg/m ³
Latvia	Local name	Sērskābe3 (migla, kas tiek definēta kā torakālā frakcija)
Latvia	OEL TWA (mg/m ³)	0.05 mg/m ³
Lithuania	Local name	Sieros rūgštis (rūkas)
Lithuania	IPRV (mg/m ³)	0.05 mg/m ³
Lithuania	TPRV (mg/m ³)	3 mg/m ³
Lithuania	Remark (LT)	Renkantis tinkamą poveikio stebėsenos modelį turi būti atsižvelgiama į galimus apribojimus ir trukdžius, galinčius kilti, kai esama kitų sieros junginių. Rūkas (migla) apibrėžiamas kaip įkvepiama dalis.
Netherlands	Local name	Zwavelzuur
Netherlands	Grenswaarde TGG 8H (mg/m ³)	0.05 mg/m ³ (nevel), gedefinieerd als de thoracale fractie
Portugal	Local name	Ácido sulfúrico
Portugal	OEL TWA (mg/m ³)	0.2 mg/m ³ T (Fração torácica)
Romania	Local name	Acid sulfuric și anhidrida sulfuroasa
Romania	OEL TWA (mg/m ³)	0.5 mg/m ³
Romania	OEL STEL (mg/m ³)	1 mg/m ³
Slovakia	Local name	Kyselina sirová (hmla)
Slovakia	NPHV (priemerná) (mg/m ³)	0.05 mg/m ³
Slovenia	Local name	žveplova kislina - megla in žveplov trioksid (merjeno kot žveplova kislina)
Slovenia	OEL TWA (mg/m ³)	0.05 mg/m ³
Spain	Local name	Ácido sulfúrico
Spain	VLA-ED (mg/m ³)	0.05 mg/m ³ niebla
Spain	Notes	az (Al seleccionar un método adecuado de control de la exposición, deben tomarse en consideración posibles limitaciones e interferencias que pueden surgir en presencia de otros compuestos de azufre), VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo. Todos estos agentes químicos figuran al menos en una de las directivas de valores límite indicativos publicadas hasta ahora (ver Anexo C. Bibliografía). Los estados miembros disponen de un tiempo fijado en dichas directivas para su transposición a los valores límites de cada país miembro. Una vez adoptados, estos valores tienen la misma validez que el resto de los valores adoptados por el país), s (Esta sustancia tiene prohibida total o parcialmente su comercialización y uso como fitosanitario y/o como biocida. Para una información detallada acerca de las prohibiciones consúltense: Base de datos de productos biocidas: http://www.msssi.gob.es/ciudadanos/productos.do?tip o=plaguicidas Base de datos de productos fitosanitarios http://www.magrama.gob.es/agricultura/pags/fitos/regi stro/fichas/pdf/Lista_sa.pdf), d (Véase UNE EN 481: Atmosferas en los puestos de trabajo. Definición de las fracciones por el tamaño de las partículas para la medición de aerosoles).
Sweden	Local name	Svavelsyra
Sweden	nivågränsvärde (NVG) (mg/m ³)	0.1 mg/m ³ inhalerbar fraktion
Sweden	kortidsvärde (KTV) (mg/m ³)	0.2 mg/m ³ inhalerbar fraktion

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Sweden	Anmärkning (SE)	C (Ämnet är cancerframkallande Risk för cancer finns även vid annan exponering än via inandning. För vissa cancerframkallande ämnen som inte har gränsvärden gäller förbud eller tillståndskrav enligt föreskrifterna om kemiska arbetsmiljörisker); V (Väglödande korttidsgränsvärde ska användas som ett rekommenderat högsta värde som inte bör överskridas); 2 (Med inhalerbart damm menas den dammfraktion som definieras i svensk standard SS-EN 481, Arbetsplatsluft – Partikelstorleksfraktioner för mätning av luftburna partiklar, Utgåva 1, 1993, punkt 2.3 och som har en provtagningskaraktäristik enligt punkt 5.1); 43 (Aerosoler av svavelsyra har i studier visats vara cancerframkallande)
United Kingdom	Local name	Sulphuric acid
United Kingdom	WEL TWA (mg/m ³)	0.05 mg/m ³ mist
United Kingdom	Remark (WEL)	The mist is defined as the thoracic fraction
Iceland	Local name	Brennisteinssýra
Iceland	OEL (8 hours ref) (mg/m ³)	1 mg/m ³
Russian Federation	Local name	Серная кислота+
Russian Federation	OEL Ceiling (mg/m ³)	1 mg/m ³
Russian Federation	Remark (RU)	2 класс опасности - высокоопасное; а (аэрозоль); + (соединения, при работе с которыми требуется специальная защита кожи и глаз; символ проставлен вслед за наименованием вещества)
Norway	Local name	Svovelsyre aerosol
Norway	Grenseverdier (AN) (mg/m ³)	0.1 mg/m ³ torakal fraksjon
Norway	Merknader (NO)	K (Kjemikalier som skal betraktes som kreftfremkallende); E (EU har en veiledende grenseverdi for stoffet)
Switzerland	Local name	Schwefelsäure
Switzerland	VME (mg/m ³)	0.1 mg/m ³
Switzerland	VLE (mg/m ³)	0.1 mg/m ³
Switzerland	Remark (CH)	e(mg/m ³) ³ - SS _c - Lunge ^{KT^{HU}} - DFG, NIOSH, OSHA
Turkey	Local name	Sülfürik asit
Turkey	OEL TWA (mg/m ³)	0.05 mg/m ³ (buharı)
Turkey	Comments	10) Uygun maruziyet izleme yöntemi seçilirken, ortamda bulunabilecek diğer sülfür bileşiklerinin olası sınırlamaları ve etkileşimleri de dikkate alınacaktır; 11) Buhar : Gırtlakçı geçen ve havanın iletildiği kanallara (soluk borusu, bifürkasyonlar) ve ciğerin solunum ile ilgili bölgelerine (toraks) nüfuz eden ortalama 10 µm çapındaki solunabilir partiküller olarak tanımlanır
Australia	Local name	Sulphuric acid
Australia	TWA (mg/m ³)	1 mg/m ³ Synonym (Sulfuric acid)
Australia	STEL (mg/m ³)	3 mg/m ³ Synonym (Sulfuric acid)
USA - ACGIH	Local name	Sulfuric acid
USA - ACGIH	ACGIH TWA (mg/m ³)	0.2 mg/m ³
USA - ACGIH	Remark (ACGIH)	Pulm func
USA - OSHA	Local name	Sulfuric acid
USA - OSHA	OSHA PEL (TWA) (mg/m ³)	1 mg/m ³
sulphuric acid ... % (7664-93-9)		
EU	Local name	Sulphuric acid (mist)
EU	IOELV TWA (mg/m ³)	0.05 mg/m ³
Austria	Local name	Schwefelsäure
Austria	MAK (mg/m ³)	0.1 mg/m ³
Austria	MAK Short time value (mg/m ³)	0.2 mg/m ³
Belgium	Local name	Acide sulfurique # Zwavelzuur
Belgium	Limit value (mg/m ³)	1 mg/m ³

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sulphuric acid ... % (7664-93-9)		
Belgium	Short time value (mg/m ³)	3 mg/m ³
Bulgaria	Local name	Сярна киселина
Bulgaria	OEL TWA (mg/m ³)	0.05 mg/m ³ аерозоли
Bulgaria	Notes	• (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност); (2) При избора на подходящ метод за наблюдение на експозицията следва да се вземат под внимание потенциалните ограничения и взаимодействия, които могат да възникнат в присъствието на други серни съединения; (3) Аерозолът се определя като вдишвана част
Croatia	Local name	Sumporna kiselina
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	0.05 mg/m ³
Croatia	Naznake (HR)	C (nagrizajuće); EU*** (naznaka da se radi o tvarima za koje su utvrđene indikativne granične vrijednosti izloženosti prema Direktivi 2009/161/ EU (treća lista))
Czech Republic	Local name	Kyselina sírová, jako SO
Czech Republic	Expoziční limity (PEL) (mg/m ³)	1 mg/m ³
Czech Republic	Expoziční limity (NPK-P) (mg/m ³)	2 mg/m ³
Denmark	Local name	Svovlsyre
Denmark	Grænseværdie (langvarig) (mg/m ³)	0.05 mg/m ³
Estonia	Local name	Väävelhape, udu
Estonia	OEL TWA (mg/m ³)	0.05 mg/m ³
Finland	Local name	Rikkihappo
Finland	HTP-arvo (8h) (mg/m ³)	0.05 mg/m ³
Finland	HTP-arvo (15 min)	0.1 mg/m ³
Finland	Huomautus (FI)	torakaalijae
France	Local name	Acide sulfurique
France	VME (mg/m ³)	0.05 mg/m ³ (fraction thoracique)
France	VLE (mg/m ³)	3 mg/m ³ (fraction thoracique)
France	Note (FR)	VME réglementaire indicative; VLE recommandée/admise
Germany	Local name	Schwefelsäure
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	0.1 mg/m ³ E (mg/m ³)
Germany	Remark (TRGS 900)	DFG,EU,Y
Greece	OEL TWA (mg/m ³)	1 mg/m ³
Hungary	Local name	KÉN SAV
Hungary	AK-érték	0.05 mg/m ³
Hungary	Megjegyzések (HU)	m; l.
Ireland	Local name	Sulphuric acid
Ireland	OEL (8 hours ref) (ppm)	0.05 ppm
Ireland	Notes (IE)	IOELV
Italy	Local name	Acido solforico (nebulizzazione)
Italy	OEL TWA (mg/m ³)	0.05 mg/m ³
Latvia	Local name	Sērskābe3 (migla, kas tiek definēta kā torakālā frakcija)
Latvia	OEL TWA (mg/m ³)	0.05 mg/m ³
Lithuania	Local name	Sieros rūgštis (rūkas)
Lithuania	IPRV (mg/m ³)	0.05 mg/m ³
Lithuania	TPRV (mg/m ³)	3 mg/m ³

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Lithuania	Remark (LT)	Renkantis tinkamą poveikio stebėsenos modelį turi būti atsižvelgiama į galimus apribojimus ir trukdžius, galinčius kilti, kai esama kitų sieros junginių. Rūkas (migla) apibrėžiamas kaip įkvepiama dalis.
Netherlands	Local name	Zwavelzuur
Netherlands	Grenswaarde TGG 8H (mg/m ³)	0.05 mg/m ³ (nevel), gedefinieerd als de thoracale fractie
Portugal	Local name	Ácido sulfúrico
Portugal	OEL TWA (mg/m ³)	0.2 mg/m ³ T (Fração torácica)
Romania	Local name	Acid sulfuric și anhidrida sulfuroasa
Romania	OEL TWA (mg/m ³)	0.5 mg/m ³
Romania	OEL STEL (mg/m ³)	1 mg/m ³
Slovakia	Local name	Kyselina sírová (hmla)
Slovakia	NPHV (priemerná) (mg/m ³)	0.05 mg/m ³
Slovenia	Local name	žveplova kislina - meгла in žveplov trioksid (merjeno kot žveplova kislina)
Slovenia	OEL TWA (mg/m ³)	0.05 mg/m ³
Spain	Local name	Ácido sulfúrico
Spain	VLA-ED (mg/m ³)	0.05 mg/m ³ niebla
Spain	Notes	az (Al seleccionar un método adecuado de control de la exposición, deben tomarse en consideración posibles limitaciones e interferencias que pueden surgir en presencia de otros compuestos de azufre), VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo. Todos estos agentes químicos figuran al menos en una de las directivas de valores límite indicativos publicadas hasta ahora (ver Anexo C. Bibliografía). Los estados miembros disponen de un tiempo fijado en dichas directivas para su transposición a los valores límites de cada país miembro. Una vez adoptados, estos valores tienen la misma validez que el resto de los valores adoptados por el país), s (Esta sustancia tiene prohibida total o parcialmente su comercialización y uso como fitosanitario y/o como biocida. Para una información detallada acerca de las prohibiciones consúltese: Base de datos de productos biocidas: http://www.msssi.gob.es/ciudadanos/productos.do?tip o=plaguicidas Base de datos de productos fitosanitarios http://www.magrama.gob.es/agricultura/pags/fitos/registro/fichas/pdf/Lista_sa.pdf), d (Véase UNE EN 481: Atmósferas en los puestos de trabajo. Definición de las fracciones por el tamaño de las partículas para la medición de aerosoles).
Sweden	Local name	Svavelsyra
Sweden	nivågränsvärde (NVG) (mg/m ³)	0.1 mg/m ³ inhalerbar fraktion
Sweden	kortidsvärde (KTV) (mg/m ³)	0.2 mg/m ³ inhalerbar fraktion
Sweden	Anmärkning (SE)	C (Ämnet är cancerframkallande Risk för cancer finns även vid annan exponering än via inandning. För vissa cancerframkallande ämnen som inte har gränsvärden gäller förbud eller tillståndskrav enligt föreskrifterna om kemiska arbetsmiljörisker); V (Vägledande korttidsgränsvärde ska användas som ett rekommenderat högsta värde som inte bör överskridas); 2 (Med inhalerbart damm menas den dammfraktion som definieras i svensk standard SS-EN 481, Arbetsplatsluft – Partikelstorleksfraktioner för mätning av luftburna partiklar, Utgåva 1, 1993, punkt 2.3 och som har en provtagningskaraktär enligt punkt 5.1); 43 (Aerosoler av svavelsyra har i studier visats vara cancerframkallande)
United Kingdom	Local name	Sulphuric acid

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sulphuric acid ... % (7664-93-9)		
United Kingdom	WEL TWA (mg/m ³)	0.05 mg/m ³ mist
United Kingdom	Remark (WEL)	The mist is defined as the thoracic fraction
Iceland	Local name	Brennisteinssyra
Iceland	OEL (8 hours ref) (mg/m ³)	1 mg/m ³
Russian Federation	Local name	Серная кислота+
Russian Federation	OEL Ceiling (mg/m ³)	1 mg/m ³
Russian Federation	Remark (RU)	2 класс опасности - высокоопасное; а (аэрозоль); + (соединения, при работе с которыми требуется специальная защита кожи и глаз; символ проставлен вслед за наименованием вещества)
Norway	Local name	Svovelsyreaerosol
Norway	Grenseverdier (AN) (mg/m ³)	0.1 mg/m ³ torakal fraksjon
Norway	Merknader (NO)	K (Kjemikalier som skal betraktes som kreftfremkallende); E (EU har en veiledende grenseverdi for stoffet)
Switzerland	Local name	Schwefelsäure
Switzerland	VME (mg/m ³)	0.1 mg/m ³
Switzerland	VLE (mg/m ³)	0.1 mg/m ³
Switzerland	Remark (CH)	e(mg/m ³) - SS _c - Lunge ^{KT^{HU}} - DFG, NIOSH, OSHA
Turkey	Local name	Sülfürik asit
Turkey	OEL TWA (mg/m ³)	0.05 mg/m ³ (buharı)
Turkey	Comments	10) Uygun maruziyet izleme yöntemi seçilirken, ortamda bulunabilecek diğer sülfür bileşiklerinin olası sınırlamaları ve etkileşimleri de dikkate alınacaktır; 11) Buhar : Gırtlığı geçen ve havanın iletildiği kanallara (soluk borusu, bifürkasyonlar) ve ciğerin solunum ile ilgili bölgelerine (toraks) nüfuz eden ortalama 10 µm çapındaki solunabilir partiküller olarak tanımlanır
Australia	Local name	Sulphuric acid
Australia	TWA (mg/m ³)	1 mg/m ³ Synonym (Sulfuric acid)
Australia	STEL (mg/m ³)	3 mg/m ³ Synonym (Sulfuric acid)
USA - ACGIH	Local name	Sulfuric acid
USA - ACGIH	ACGIH TWA (mg/m ³)	0.2 mg/m ³
USA - ACGIH	Remark (ACGIH)	Pulm func
USA - OSHA	Local name	Sulfuric acid
USA - OSHA	OSHA PEL (TWA) (mg/m ³)	1 mg/m ³

8.2. Exposure controls

Materials for protective clothing:

GIVE EXCELLENT RESISTANCE: butyl rubber. polyethylene. tetrafluoroethylene. GIVE LESS RESISTANCE: neoprene. PVC. viton. GIVE POOR RESISTANCE: natural rubber. nitrile rubber. PVA

Condition	Material	Standard
Excellent resistance:	Butyl rubber, Polyethylene, Tetrafluoroethylene	

Hand protection:

Gloves

Eye protection:

Face shield

Skin and body protection:

Corrosion-proof clothing

Type	Standard
Chemically resistant protective gloves	

Respiratory protection:

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Gas mask with filter type E at conc. in air > exposure limit

Device	Filter type	Condition	Standard
Gas mask	Type E - Sulfur dioxide and hydrogen chloride (acidic gases)	If conc. in air > exposure limit	



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Molecular mass	: 98.08 g/mol
Colour	: Pure substance: colourless.
Odour	: Almost odourless.
Odour threshold	: > 1 mg/m ³
pH	: 0.3 (49 g/l, H ₂ O, 25 °C)
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: -20 °C
Freezing point	: No data available
Boiling point	: 335 °C (1.013 hPa)
Flash point	: Not applicable
Auto-ignition temperature	: Not applicable
Decomposition temperature	: > 340 °C
Flammability (solid, gas)	: No data available
Vapour pressure	: 0.0001 hPa (20 °C)
Relative vapour density at 20 °C	: 3.4
Relative density	: 1.405 - 1.840
Density	1.84 g/cm ³ (20 °C)
Solubility	: Exothermically soluble in water. Soluble in ethanol.
Log Pow	: -2.2 (Estimated value)
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

Minimum ignition energy	: Not applicable
VOC content	: Not applicable
Other properties	: Gas/vapour heavier than air at 20°C. Clear. Hygroscopic. Physical properties depending on the concentration. Slightly volatile. Substance has acid reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

Violent exothermic reaction with water (moisture): release of corrosive gases/vapours. On heating: release of toxic and corrosive gases/vapours (sulphur oxides). Violent exothermic reaction with (some) bases. Reacts exothermically with organic material: (increased) risk of fire. Reacts with many compounds e.g.: with combustible materials, with (some) bases and with (strong) reducers: (increased) risk of fire/explosion. Reacts with (some) metals: release of highly flammable gases/vapours (hydrogen).

10.2. Chemical stability

Unstable on exposure to moisture.

10.3. Possibility of hazardous reactions

No additional information available

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10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Sulfuric acid	
LD50 oral rat	> 2140 mg/kg (Rat)

Skin corrosion/irritation : Causes severe skin burns and eye damage.

Serious eye damage/irritation : Serious eye damage, category 1, implicit

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

IARC group : 1

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Classification concerning the environment: not applicable.

Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

Ecology - water : Mild water pollutant (surface water). Ground water pollutant. Maximum concentration in drinking water: 250 mg/l (sulfate) (Directive 98/83/EC). Harmful to fishes. Harmful to invertebrates (Daphnia). Toxic to plankton. pH shift. Inhibition of activated sludge.

Sulfuric acid	
LC50 fish 1	42 mg/l (LC50; 96 h)
EC50 Daphnia 1	29 mg/l (EC50; 24 h)

12.2. Persistence and degradability

Sulfuric acid	
Persistence and degradability	Biodegradability: not applicable. No (test)data on mobility of the components available.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

12.3. Bioaccumulative potential

Sulfuric acid	
Log Pow	-2.2 (Estimated value)
Bioaccumulative potential	Bioaccumulation: not applicable.

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

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SECTION 13: Disposal considerations

13.1. Waste treatment methods






Product/Packaging disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle/reuse. Remove for physico-chemical/biological treatment. Remove to an authorized dump (Class I). Use appropriate containment to avoid environmental contamination.

Additional information : LWCA (the Netherlands): KGA category 01. Hazardous waste according to Directive 2008/98/EC.

European List of Waste (LoW) code : 06 01 01* - sulphuric acid and sulphurous acid

SECTION 14: Transport information

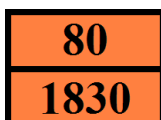
In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
1830	1830	1830	1830	1830
14.2. UN proper shipping name				
SULPHURIC ACID	SULPHURIC ACID	Sulphuric acid	SULPHURIC ACID	SULPHURIC ACID
Transport document description				
UN 1830 SULPHURIC ACID, 8, II, (E)	UN 1830 SULPHURIC ACID, 8, II	UN 1830 Sulphuric acid, 8, II	UN 1830 SULPHURIC ACID, 8, II	UN 1830 SULPHURIC ACID, 8, II
14.3. Transport hazard class(es)				
8	8	8	8	8
				
14.4. Packing group				
II	II	II	II	II
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available				

14.6. Special precautions for user

- Overland transport

Classification code (ADR) : C1
Limited quantities (ADR) : 11
Excepted quantities (ADR) : E2
Packing instructions (ADR) : P001, IBC02
Mixed packing provisions (ADR) : MP15
Portable tank and bulk container instructions (ADR) : T8
Portable tank and bulk container special provisions (ADR) : TP2
Tank code (ADR) : L4BN
Vehicle for tank carriage : AT
Transport category (ADR) : 2
Hazard identification number (Kemler No.) : 80
Orange plates :



Tunnel restriction code (ADR) : E

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EAC code : 2P

- Transport by sea

Transport regulations (IMDG) : Subject
Limited quantities (IMDG) : 1 L
Excepted quantities (IMDG) : E2
Packing instructions (IMDG) : P001
IBC packing instructions (IMDG) : IBC02
IBC special provisions (IMDG) : B20
Tank instructions (IMDG) : T8
Tank special provisions (IMDG) : TP2
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-B
Stowage category (IMDG) : C
Stowage and handling (IMDG) : SW15
Properties and observations (IMDG) : Colourless, oily liquid, mixture over 1.41 up to 1.84 relative density. In the presence of moisture, highly corrosive to most metals. Causes burns to skin, eyes and mucous membranes.
MFAG-No : 137

- Air transport

Transport regulations (IATA) : Subject to the provisions
PCA Excepted quantities (IATA) : E2
PCA Limited quantities (IATA) : Y840
PCA limited quantity max net quantity (IATA) : 0.5L
PCA packing instructions (IATA) : 851
PCA max net quantity (IATA) : 1L
CAO packing instructions (IATA) : 855
CAO max net quantity (IATA) : 30L
ERG code (IATA) : 8L

- Inland waterway transport

Classification code (ADN) : C1
Limited quantities (ADN) : 1 L
Excepted quantities (ADN) : E2
Carriage permitted (ADN) : T
Equipment required (ADN) : PP, EP
Number of blue cones/lights (ADN) : 0

- Rail transport

Transport regulations (RID) : Subject
Classification code (RID) : C1
Limited quantities (RID) : 1L
Excepted quantities (RID) : E2
Packing instructions (RID) : P001, IBC02
Mixed packing provisions (RID) : MP15
Portable tank and bulk container instructions (RID) : T8
Portable tank and bulk container special provisions (RID) : TP2
Tank codes for RID tanks (RID) : L4BN
Transport category (RID) : 2
Colis express (express parcels) (RID) : CE6
Hazard identification number (RID) : 80

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

Not applicable

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SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

VOC content : Not applicable

15.1.2. National regulations

Germany

VwVwS Annex reference : Water hazard class (WGK) 1, low hazard to waters (Classification according to VwVwS, Annex 4)

WGK remark : Classification water polluting in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 27 July 2005 (Anhang 2)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : sulphuric acid ... % is listed

SZW-lijst van mutagene stoffen : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : None of the components are listed

Denmark

Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

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
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
EC50	Median effective concentration
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
PBT	Persistent Bioaccumulative Toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
vPvB	Very Persistent and Very Bioaccumulative

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

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Full text of H- and EUH-statements:	
Skin Corr. 1A	Skin corrosion/irritation, Category 1A
Met. Corr. 1	Corrosive to metals, Category 1
H314	Causes severe skin burns and eye damage
H290	May be corrosive to metals

SDS ISOLAB

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product