

Classified as hazardous in accordance with the criteria of EPA New Zealand

## Section 1 - Identification

### Product Identifier

<b>Product Name</b>	<u>Sulfuric acid, fuming, 30% (Oleum)</u>
<b>CAS No</b>	8014-95-7
<b>Synonyms</b>	Oleum
<b>Molecular Formula</b>	H <sub>2</sub> O <sub>4</sub> S . S O <sub>3</sub>
<b>Molecular Weight</b>	178.14
<b>Recommended Use</b>	Laboratory chemicals.
<b>Uses advised against</b>	No Information available

<b>Product Code</b>	<b>R19300</b>
<b>Address</b>	Thermo Fisher Scientific New Zealand Ltd 244 Bush Road, Albany, Auckland, New Zealand
<b>Emergency Tel.</b>	<b>CHEMTREC®</b> <b>09 980 6780 or +64 9 980 6780</b>
<b>Telephone / Fax Numbers</b>	Tel: 09 980 6700 Fax: 09 980 6788
<b>E-mail address</b>	<a href="mailto:ANZinfo@thermofisher.com">ANZinfo@thermofisher.com</a>

## Section 2 - Hazard(s) Identification

### Classification under Work Safe New Zealand

Classified as hazardous in accordance with the criteria of EPA New Zealand

**HSNO Approval Number**      **HSR001550**

### GHS Classification

#### Physical hazards

Substances/mixtures corrosive to metal

Category 1

#### Health hazards

Acute Inhalation Toxicity - Vapors

Category 1

Skin Corrosion/Irritation

Category 1 A

Serious Eye Damage/Eye Irritation

Category 1

Carcinogenicity

Category 1

Specific target organ toxicity - (single exposure)

Category 3

#### Environmental hazards

Chronic aquatic toxicity

Category 4

**Label Elements****Signal Word****Danger****Hazard Statements**

H314 - Causes severe skin burns and eye damage  
H330 - Fatal if inhaled  
H335 - May cause respiratory irritation  
H290 - May be corrosive to metals  
H350 - May cause cancer  
H413 - May cause long lasting harmful effects to aquatic life

**Precautionary Statements****Prevention**

P202 - Do not handle until all safety precautions have been read and understood  
P201 - Obtain special instructions before use  
P260 - Do not breathe dust/fume/gas/mist/vapors/spray  
P264 - Wash face, hands and any exposed skin thoroughly after handling  
P271 - Use only outdoors or in a well-ventilated area  
P284 - Wear respiratory protection  
P280 - Wear protective gloves/protective clothing/eye protection/face protection

**Response**

P363 - Wash contaminated clothing before reuse  
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower  
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 - Immediately call a POISON CENTER or doctor

**Storage**

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed  
P405 - Store locked up

**Disposal**

P501 - Dispose of contents/ container to an approved waste disposal plant

**Other hazards which do not result in classification**

Reacts violently with water

## Section 3 - Composition and Information on Ingredients

Component	CAS No	Weight %
Sulfuric acid, fuming	8014-95-7	80
Sulfur trioxide	7446-11-9	20

## Section 4 - First Aid Measures

**Description of first aid measures**

<b>New Zealand Emergency Tel.</b>	CHEMTREC® 09 980 6780 or +64 9 980 6780
<b>Inhalation</b>	Remove to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
<b>Eye Contact</b>	Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
<b>Ingestion</b>	Do NOT induce vomiting. Call a physician or poison control center immediately.
<b>Self-Protection of the First Aider</b>	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.
<b>First Aid Facilities</b>	Eyewash, safety shower and washroom.
<b>Most important symptoms and effects</b>	Causes burns by all exposure routes. . Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation
<b>Notes to Physician</b>	Treat symptomatically.

## Section 5 - Fire Fighting Measures

### Suitable Extinguishing Media

Carbon dioxide (CO<sub>2</sub>). Dry chemical.

### Extinguishing media which must not be used for safety reasons

Water.

### Specific Hazards Arising from the Chemical

Contact with water liberates toxic gas. Water reactive. Produce flammable gases on contact with water.

### Hazardous Combustion Products

Sulfur oxides.

### Special protective equipment and precautions for fire fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## Section 6 - Accidental Release Measures

### Personal Precautions, Protective Equipment and Emergency Procedures

#### Emergency procedures

Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Use personal protective equipment as required. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Do not use metal tools or equipment. DO NOT GET WATER on spilled substance or inside containers

#### Environmental Precautions

Should not be released into the environment. Prevent product from entering drains. Keep out of waterways. See Section 12 for additional Ecological Information.

#### Methods for Containment and Clean Up

Use personal protective equipment as required. Provide adequate ventilation. Neutralize with lime milk or soda and flush with plenty of water. Soak up with inert absorbent material. Sweep up and shovel into suitable containers for disposal. Keep from any

possible contact with water, because of violent reaction and possible flash fire. Do not flush into surface water or sanitary sewer system.

**Precautions to prevent secondary hazards**

Clean contaminated objects and areas thoroughly observing environmental regulations

**Reference to Other Sections**

Refer to protective measures listed in Sections 8 and 13.

## **Section 7 - Handling and Storage**

**Precautions for Safe Handling****Advice on safe handling**

Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Do not allow contact with water because of violent reaction. Handle under inert gas, protect from moisture.

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

**Conditions for Safe Storage, Including any Incompatibilities****Storage Conditions**

Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Protect from moisture. Corrosives area.

**Incompatible Materials**

Bases. Strong oxidizing agents. Ammonia. Combustible material. Metals. Reducing Agent.

AS/NZS 2243.10:2004, Safety in laboratories - Storage of chemicals

## **Section 8 - Exposure Controls and Personal Protection**

**Control parameters****Exposure limits**

The product does not contain any hazardous materials with occupational exposure limits established.

**Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

**Appropriate engineering controls****Engineering Measures**

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

**Individual protection measures, such as personal protective equipment****Eye Protection**

Goggles (Australian/New Zealand Standard AS/NZS 1337 - Eye protectors for Industrial applications)

**Hand Protection**

Protective gloves

Glove material	Breakthrough time	Glove thickness	AUS/NZ Standard	Glove comments
Butyl rubber.	See manufacturers recommendations	-	AS/NZS 2161	(minimum requirement)

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure

**Respiratory Protection** Use an AS/NZS 1716 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained in line with AS/NZS 1715 on the use and maintenance of respiratory protective devices

**Recommended Filter type:** Particulates filter conforming to EN 143 Acid gases filter Type E Yellow conforming to EN14387 (or AUS/NZ equivalent)

**Recommended half mask:-** Valve filtering: EN405 or Half mask: EN140 plus filter, EN 141 (or AUS/NZ equivalent) When RPE is used a face piece Fit Test should be conducted

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls** No information available.

## Section 9 - Physical and Chemical Properties

### Information on basic physical and chemical properties

<b>Physical State</b>	Liquid	
<b>Appearance</b>	Light brown	
<b>Odor</b>	pungent	
<b>Odor Threshold</b>	No data available	
<b>pH</b>	No information available	
<b>Melting Point/Range</b>	2 °C / 35.6 °F	
<b>Softening Point</b>	No data available	
<b>Boiling Point/Range</b>	138 °C / 280.4 °F	@ 760 mmHg
<b>Flammability (liquid)</b>	No data available	
<b>Flammability (solid,gas)</b>	Not applicable	Liquid
<b>Explosion Limits</b>	No data available	
<b>Flash Point</b>	No information available	<b>Method -</b> No information available
<b>Autoignition Temperature</b>	No data available	
<b>Decomposition Temperature</b>	No data available	
<b>Viscosity</b>	No data available	
<b>Water Solubility</b>	Miscible	
<b>Solubility in other solvents</b>	No information available	
<b>Partition Coefficient (n-octanol/water)</b>		
<b>Vapor Pressure</b>	1 mmHg @ 146 °C	
<b>Density / Specific Gravity</b>	1.920	
<b>Bulk Density</b>	Not applicable	Liquid
<b>Vapor Density</b>	3 (Air = 1.0)	(Air = 1.0)
<b>Particle characteristics</b>	Not applicable (liquid)	

### Other information

**Molecular Formula** H2 O4 S . S O3  
**Molecular Weight** 178.14

## Section 10 - Stability and Reactivity

Reactivity	Yes
Stability	Hygroscopic. Reacts violently with water, liberating extremely flammable gases.
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	No information available.
Conditions to Avoid	Incompatible products, Exposure to moist air or water.
Incompatible Materials	Bases, Strong oxidizing agents, Ammonia, Combustible material, Metals, Reducing Agent.
Hazardous Decomposition Products	Sulfur oxides.

## Section 11 - Toxicological Information

### Acute Effects

#### Information on likely routes of exposure

##### Product Information

Inhalation	Not an expected route of exposure.
Eyes	Avoid contact with eyes. Corrosive to the eyes and may cause severe damage including blindness.
Skin	Causes burns. Avoid contact with skin.
Ingestion	May be harmful if swallowed.

#### Numerical measures of toxicity

##### (a) acute toxicity;

Oral	Based on available data, the classification criteria are not met
Dermal	No data available
Inhalation	Category 2

#### Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sulfuric acid, fuming	LD50 = 2140 mg/kg ( Rat )		LC50 = 347 ppm ( Rat ) 1 h
Sulfur trioxide			LC50 = 1136 mg/m <sup>3</sup> ( Rat ) 1 h LC50 = 1375 mg/m <sup>3</sup> ( Rat ) 1 h

(b) skin corrosion/irritation; Category 1 A

(c) serious eye damage/irritation; Category 1

##### (d) respiratory or skin sensitization;

Respiratory	No data available
Skin	No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

The table below indicates whether each agency has listed any ingredient as a carcinogen. Exposure to strong inorganic mists containing sulfuric acid may cause cancer by inhalation.

Component	New Zealand	Australia	New South Wales	Western Australia	IARC	EU	UK	Germany
Sulfuric acid, fuming					Group 1			
Sulfur trioxide					Group 1			

(g) reproductive toxicity; No data available

(h) STOT-single exposure; Category 3

Results / Target organs Respiratory system

(i) STOT-repeated exposure; No data available

Target Organs No information available.

(j) aspiration hazard; No data available

Other Adverse Effects See actual entry in RTECS for complete information

#### Symptoms / effects, both acute and delayed

Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

## Section 12 - Ecological Information

### Ecotoxicity

**Aquatic ecotoxicity** Reacts with water so no ecotoxicity data for the substance is available. Do not flush into surface water or sanitary sewer system.

**Terrestrial ecotoxicity** There is no data for this product

### Persistence and Degradability

**Persistence** Miscible with water, Persistence is unlikely, based on information available.

**Bioaccumulative Potential** Bioaccumulation is unlikely

**Mobility** The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

### Other adverse effects

**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors  
**Persistent Organic Pollutant** This product does not contain any known or suspected substance  
**Ozone Depletion Potential** This product does not contain any known or suspected substance

## Section 13 - Disposal Considerations

### Waste treatment methods

#### Waste from Residues/Unused Products

Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes, including emptied containers, are controlled wastes and should be disposed of in accordance with all federal, E.P.A., state and local regulations. Assure conformity with all applicable regulations.

#### Contaminated Packaging

Dispose of this container to hazardous or special waste collection point.

#### Other Information

Disposal agencies or waste contractors must comply with the New Zealand Hazardous Substances (Disposal) Regulations . Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not flush to sewer. Large amounts will affect pH and harm aquatic organisms.

## Section 14 - Transport Information

Component	Hazchem Code
Sulfur trioxide 7446-11-9 ( 20 )	4WE

### NZS 5433:2020

UN-No UN1831  
 Proper Shipping Name SULPHURIC ACID, FUMING  
 Hazard Class 8  
 Subsidiary Hazard Class 6.1  
 Packing Group I

### IATA

FORBIDDEN FOR IATA TRANSPORT

UN-No UN1831  
 Proper Shipping Name SULPHURIC ACID, FUMING FORBIDDEN FOR IATA TRANSPORT  
 Hazard Class 8  
 Subsidiary Hazard Class 6.1  
 Packing Group I

### IMDG/IMO

UN-No UN1831  
 Proper Shipping Name SULPHURIC ACID, FUMING  
 Hazard Class 8  
 Subsidiary Hazard Class 6.1  
 Packing Group I

#### Environmental hazards

No hazards identified

#### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable, packaged goods

#### Special Precautions

No special precautions required. Please refer to the applicable dangerous goods regulations for additional information.

#### Additional information

None known

## Section 15 - Regulatory Information

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



<b>HSNO Approval Number</b>	HSR001550
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**National Regulations**

There are no applicable tolerable exposure limits or environmental exposure limits according to the EPA Controls for Hazardous Substances

**Certified handlers, tracking and controlled substance license requirements**

Certified handlers are required for some substances. This includes substances requiring a controlled substance license, and most explosives, vertebrates toxic agents, and certain fumigants. Acutely toxic substances which are a Category 1 or 2, such as pesticides also require Certified handlers. Please check the Health and Safety at Work Act 2015 for further information. Tracking is required for some highly hazardous substances. These substances need to be under the control of an appropriately trained person or appropriately secured. Please check the Health and Safety at Work Act 2015 for further information.

**Prohibition or notification/licensing requirements**

Shown below are details of specific prohibition/notifications or licensing requirements when they apply.

**International Regulations**

**Ozone Depletion Potential** This product does not contain any known or suspected substance

**Persistent Organic Pollutant** This product does not contain any known or suspected substance

**Rotterdam Convention (PIC)** Not applicable

Component	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	IMDG Marine Pollutant
Sulfur trioxide	15 tonne	75 tonne	

**Authorisation/Restrictions according to EU REACH**

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Sulfuric acid, fuming	-	Use restricted. See item 75. (see link for restriction details)	-
Sulfur trioxide	-	Use restricted. See item 75. (see link for restriction details)	-

<https://echa.europa.eu/substances-restricted-under-reach>

**International Inventories**

New Zealand (NZIoC), Australia (AICS), Europe (EINECS/ELINCS/NLP), Korea (KECL), China (IECSC), Taiwan (TCSI), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	NZIoC	AICS	EINECS	ELINCS	NLP	KECL	IECSC	TCSI
Sulfuric acid, fuming	8014-95-7	X	X	-	-	-	KE-17307	X	X
Sulfur trioxide	7446-11-9	X	X	-	-	-	KE-32690	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	PICCS	ISHL	ENCS
Sulfuric acid, fuming	8014-95-7	-	-	-	-	X	X	X
Sulfur trioxide	7446-11-9	X	ACTIVE	X	-	X	X	X

**Legend:** X - Listed '-' - Not Listed

**KECL** - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

## Section 16 - Other Information

This safety data sheet complies with the requirements of the EPA Hazardous Substances (Hazard Classification) Notice 2020 and WorkSafe New Zealand Regulations

### Legend

**NZIoC** - New Zealand Inventory of Chemicals  
**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**IECSC** - Chinese Inventory of Existing Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**NZS 5433:2020** - Transport of Dangerous Goods on Land

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**WEL** - Workplace Exposure Limit

**DNEL** - Derived No Effect Level

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**VOC** - (Volatile Organic Compound)

**AICS** - Australian Inventory of Chemical Substances

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**ENCS** - Japanese Existing and New Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**CAS** - Chemical Abstracts Service

**ACGIH** - American Conference of Governmental Industrial Hygienists

**PNEC** - Predicted No Effect Concentration

**OECD** - Organisation for Economic Co-operation and Development

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**ADG** - Australian Code for the Transport of Dangerous Goods by Road and Rail

**LC50** - Lethal Concentration 50%

**ATE** - Acute Toxicity Estimate

**RPE** - Respiratory Protective Equipment

**NOEC** - No Observed Effect Concentration

**BCF** - Bioconcentration factor

**PBT** - Persistent, Bioaccumulative, Toxic

### Key literature references and sources for data

HSNO classifications provided in the New Zealand Chemical Classification Information Database (CCID).

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

EPA Guide to classifying hazardous substances in New Zealand

EPA - Assigning a product to an existing HSNO approval guide

### Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

**Physical hazards** On basis of test data

**Health Hazards** Calculation method

**Environmental hazards** Calculation method

### Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Chemical incident response training.

**Revision Date** 22-Mar-2023

**Revision Summary** Initial Release

### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

## End of Safety Data Sheet