**HEAD OFFICE**
38 May Holman Drive
Bassendean WA 6054
**T:** (61 8) 6270 4500
**F:** (61 8) 6270 4544
**E:** admin@agentsales.com.au

SALES & SERVICES

# Safety Data Sheet

## 1. IDENTIFICATION OF THE PRODUCT AND THE SUPPLIER

### 1.1 Product Identifiers

Product name: SULPHURIC ACID > 90%

### 1.2 Other means of identification

Oil of Vitriol, Sulfuric acid, $H_2SO_4$

### 1.3 Recommended use of the product and restrictions on use

Manufacture of fertilisers, explosives, battery acid, dyes, drugs, detergents, adhesives, plastics and paints, electroplating, tanning and purification of petroleum.

### 1.4 Details of supplier of the safety data sheet

| | |
|---|---|
| Company: | AGent Sales & Services Pty Ltd |
| Street Address: | 38 May Holman Drive, Bassendean, Western Australia 6054 |
| Telephone: | (+61 8) 6270 4500 |
| Fax: | (+61 8) 6270 4544 |

### 1.5 Emergency telephone number

Telephone: 1300 883 844

## 2. HAZARDS IDENTIFICATION

### 2.1 GHS Classification

Corrosive to metals (Category 1)
Skin corrosion/irritation (Category 1)

### 2.2 GHS Label elements, including precautionary statements

**Pictogram(s):**

**Signal word:** **DANGER**

**Hazard statement(s):**

| | |
|---|---|
| H290 | May be corrosive to metals. |
| H314 | Causes severe skin burns and eye damage. |

**Prevention statement(s):**

**Prevention**

| | |
|---|---|
| P234 | Keep only in original container. |
| P260 | Do not breathe dust/fume/gas/mist/vapours/spray. |
| P264 | Wash thoroughly after handling. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |

**Response**

| | |
|---|---|
| P301 + P330 + P331 | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. |
| P303 + P361 + P353 | IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. |

| | |
|---|---|
| P304 + P340 | IF INHALED: Remove to fresh air and keep at rest in a comfortable position 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 CENTRE or doctor/physician. |
| P321 | Specific treatment is advised – see first aid instructions. |
| P363 | Wash contaminated clothing before reuse. |

**Storage**

| | |
|---|---|
| P405 | Store locked up. |

**Disposal**

| | |
|---|---|
| P501 | Dispose of contents/container in accordance with relevant regulations. |

### 2.3 Other hazards

None

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component | CAS Number | Classification | Concentration (%) |
|---|---|---|---|
| Sulphuric acid | 7664-93-9 | Met. Corr 1; Skin Corr. 1A; H290; H314 | ≥ 90 |

For the full text of the H-Statements mentioned in this section, see Section 16

## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

**In case of eye contact**

If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.

**If inhaled**

If inhaled, remove from contaminated area. To protect rescuer, use a Full-face Type B (Inorganic and acid gas) respirator or an Air-line respirator. Apply artificial respiration if not breathing. Seek immediate medical advice.

**In case of skin contact**

If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre or a doctor.

**Ingestion**

Immediately rinse mouth with water. If swallowed do not induce vomiting. For advice, contact a Poisons Information Centre (Australia 13 11 26) or a doctor.

**First Aid Facilities**

Eye wash facilities and safety shower should be available.

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

Over exposure may result in severe skin, eye and respiratory burns with permanent lung and tissue damage. Strong inorganic acid mists containing sulphuric acid is classified as carcinogenic to humans (IARC Group 1).

### 4.3 Immediate medical attention and special treatment needed

CORROSIVE POISONING TREATMENT: Immediate treatment preferably in a hospital is mandatory. In treating corrosive poisoning, DO NOT INDUCE VOMITING; DO NOT ATTEMPT GASTRIC LAVAGE; and DO NOT ATTEMPT TO NEUTRALISE THE CORROSIVE SUBSTANCE. Vomiting will increase the severity of damage to the oesophagus as the corrosive substance will again come into contact with it. Attempting gastric lavage may result in perforating either the oesophagus or stomach. Immediately dilute corrosive substance by having patient drink milk or water. If the trachea has been damaged, tracheostomy may be required. For oesophageal burns, begin broad spectrum antibiotics and corticosteroid therapy. Intravenous fluids will be required if oesophageal or gastric damage prevents ingestion of liquids. Long-range therapy will be directed toward preventing or treating oesophageal scars and strictures.

## 5. FIRE-FIGHTING MEASURES

### 5.1 Suitable extinguishing media

Water fog (or if unavailable, fine water spray), normal foam, dry chemical powder, carbon dioxide

**5.2 Specific hazards arising from the chemical**
Non-combustible. May evolve toxic gases (sulphur oxides) when heated to decomposition. May evolve flammable hydrogen gas in contact with some metals. Heating can cause expansion or decomposition of the material, which can lead to the containers exploding.

**5.3 Special protective equipment and precautions for fire fighters**
Wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to products of decomposition. Use water fog to cool intact containers and nearby storage areas. If safe to do so, remove containers from the path of fire.

**5.4 Hazchem Code**
2P

## 6. ACCIDENTAL RELEASE MEASURES

**6.1 Personal precautions, protective equipment and emergency procedures**
Wear Personal Protective Equipment (PPE) as detailed in section 8 of this SDS. Clear area of all unprotected personnel. Ventilate are where possible. Contact emergency services where appropriate.

**6.2 Environmental precautions**
Prevent product from entering drains and waterways.

**6.3 Methods of cleaning up**
Contain spillage, then cover/absorb spill with sodium bicarbonate or 50-50 mixture of sodium carbonate and sodium hydroxide. Collect for complete neutralisation and appropriate disposal.

**6.4 Reference to other sections**
See Sections 8 and 13 for exposure controls and disposal.

## 7. HANDLING AND STORAGE

**7.1 Precautions for safe handling**
Before use, carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

**7.2 Conditions for safe storage, including any incompatibilities**
Store in a secured, cool, dry, well ventilated area, removed from incompatible substances, heat or ignition sources and food stuffs. Ensure containers are adequately labelled and protected from physical damage when not in use. Check regularly for leaks or spills. Large storage areas should have appropriate ventilation and fire protections systems. This product should be stored in mild steel containers that conform to AS3780 or API-650.

This material is classified as Dangerous Goods Class 8 Corrosive by the criteria of the ADG Code and must be stored and handled in accordance with relevant regulations.

This material is a Scheduled Poison S6 and must be stored, maintained and used in accordance with the relevant regulations.

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

**8.1 Control parameters**

**Exposure Standards:**

| Chemical Name | Reference | TWA | | STEL | | Carcinogen Category | Notices |
|---|---|---|---|---|---|---|---|
| | | ppm | mg/m$^3$ | ppm | mg/m$^3$ | | |
| Sulphuric acid | SWA (AUS) | - | 1 | - | 3 | - | - |

As published in "*Workplace Exposure Standards for Airborne Contaminants, December 2011"* by SWA.

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

**Biological Limits**
No biological limit values have been entered for this product

**8.2 Exposure controls**

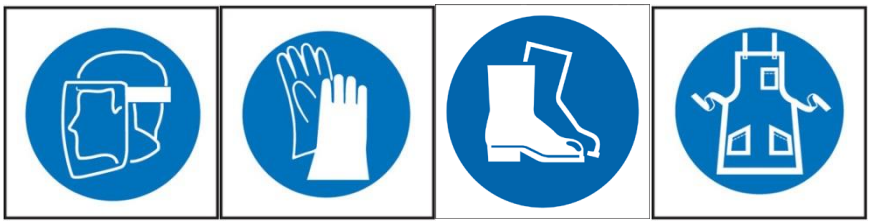
**Appropriate engineering controls**
Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. Maintain vapour/gas levels below the recommended exposure standard.

**Personal Protective Equipment (PPE):**
The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods and environmental factors.

**Eye/face protection**
Chemical splash goggles (gas tight type preferred) and full face shield (AS/NZS 1336 & 1337)

**Skin protection**
Use impervious elbow length PVC or butyl rubber gauntlet-type gloves. Wear PVC overalls/apron or jacket, pants and butyl rubber Wellington boots. Australian Standards (AS 2161 & 2919 and AS/NZS 2210)

**Respiratory**
Where risk assessment shows air-purifying respirators are appropriate, wear an approved P1 or P2 particulate filter respirator conforming to AS/NZS1715 and AS/NZS1716. In cases of prolonged exposure, wear an air-line respirator.



## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| **Appearance:** | Viscous, clear to brown liquid |
| **Odour:** | Slight odour |
| **pH:** | < 1 @ 10% solution |
| **Boiling Point:** | 335ºC |
| **Melting Point:** | 10ºC |
| **Evaporation Rate:** | Not available |
| **Flash Point:** | Not applicable |
| **Flammability Limits:** | Not applicable |
| **Specific Gravity:** | 1.83 |
| **Vapour Density:** | 3.4 @ 20ºC (air=1) |
| **Vapour Pressure:** | <0.001 mm Hg @ 20ºC |
| **Solubility (water):** | Soluble |
| **Upper Explosion Limit:** | Not applicable |
| **Lower Explosion Limit:** | Not applicable |
| **Partition Coefficient:** | Not available |
| **Auto Ignition Temperature:** | Not available |
| **Decomposition Temperature:** | Not available |
| **Viscosity:** | 24 mPa's @ 20°C |
| **Explosive Properties:** | Not available |
| **Oxidising Properties:** | Not available |
| **Odour Threshold:** | Not available |
| **Density:** | 1.83 g/mL @ 20°C |

**% Volatiles:** Not available

## 10. STABILITY AND REACTIVITY

**10.1 Reactivity**
Reacts violently with water, alkalis and most organic materials to liberate large quantities of heat. Dilute acid on contact with most metals, will liberate hydrogen gas, which is flammable and (when confined) explosive. Carefully consult Sections 10.2 to 10.6.

**10.2 Chemical stability**
Product is stable under normal conditions of use, storage and temperature. Potential for exothermic hazard.

**10.3 Possibility of hazardous reactions**
Polymerisation is not expected to occur. Sulphuric acid reacts vigorously, violently or explosively with many organic and inorganic chemicals, including water.

**10.4 Conditions to Avoid**
Avoid heat, sparks, open flames and other ignition sources

**10.5 Incompatible Materials**
Incompatible with oxidising agents (e.g. hypochlorites) and alkalis (e.g. hydroxides) and some metals, generating flammable hydrogen gas. Most plastics do not resist sulphuric acid greater than 50-60% concentration. Incompatible with cyanides, sulphides and amines.

**10.6 Hazardous Decomposition Products**
May evolve toxic gases (sulphur oxides) when heated to decomposition.

## 11. TOXICOLOGICAL INFORMATION

**11.1 Information on toxicological effects**

**Acute toxicity**
$LD_{50}$ Oral - Rat - 2,140 mg/kg
$LC_{50}$ Inhalation - Rat - 2 h - 510 mg/$m^3$

**Skin corrosion/irritation**
Skin - Rabbit
Result: Extremely corrosive and destructive to tissue.

**Serious eye damage/eye irritation**
Eyes - Rabbit
Result: Corrosive to eyes

**Respiratory or skin sensitisation**
No data available

**Germ cell mutagenicity**
There was a significant higher number of sister chromatoid exchanges, micronuclei and chromosomal aberrations in cultured lymphocytes (white blood cells) from workers exposed to sulphur dioxide in a sulphuric acid factory[1].

**Carcinogenicity**
The International Agency for Research on Cancer (IARC) has determined that occupational exposure to strong-inorganic-acid mists containing sulfuric acid is carcinogenic to humans (group 1).
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**Reproductive toxicity**
No data available (Sulfuric acid)

**Specific target organ toxicity - single exposure**
No data available (Sulfuric acid)

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available (Sulfuric acid)

**Health Effects**

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms of over-exposure or effects that may arise if the product is mishandled are:

Sulphuric acid is extremely corrosive, irritating and toxic, leading to severe burns and rapid destruction of tissue. Use safe work practices to avoid eye or skin contact and inhalation. Over exposure may result in severe skin, eye and respiratory burns with permanent lung and tissue damage. Strong inorganic acid mists containing sulphuric acid are classified as carcinogenic to humans (IARC Group 1). Upon dilution, the potential for adverse health effects may be reduced.

**Ingestion**
Can kill if swallowed. Will cause severe damage to the mucous membranes. May cause nausea, vomiting, abdominal pain and severe burns to the mouth, throat, stomach and gastrointestinal tract.

**Eye Contact**
Corrosive to eyes. Contact may cause corneal burns. Permanent eye damage including loss of sight may occur. Sulphuric acid mists and aerosols are expected to be very irritating.

**Skin Contact**
Highly corrosive to skin. Causes severe burns leading to necrosis and scarring. The severity of injury depends on the concentration of sulphuric acid and the duration of exposure.

**Inhalation**
Sulphuric acid is not very volatile; hence workplace exposures are mainly due to mists and aerosols. The acid mists are very corrosive and can cause severe irritation and injury if inhaled. The degree and severity of respiratory effects are influenced by the size of the aerosol particulate, deposition site, concentration and humidity. Inhalation of acid mists may cause severe lung damage and life threatening pulmonary oedema (accumulation of fluid in lungs). Symptoms of pulmonary oedema include coughing and shortness of breath, and may be delayed until hours or days after exposure. Asthma can also be aggravated by exposure to sulphuric acid mists

**Chronic**
Chronic exposure may lead to teeth disorders (yellow discolouration and erosion of the dental enamel), dermatitis, and respiratory irritation such as bronchial hyperactivity.

**11.2 Information on possible routes of exposure**
The substance can be absorbed into the body by skin & eye contact, ingestion and by inhalation.

**11.3 Additional Information**
RTECS: Not available

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and oedema of the larynx, spasm, inflammation and oedema of the bronchi, pneumonitis, pulmonary oedema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Pulmonary oedema. Effects may be delayed. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

## 12. ECOLOGICAL INFORMATION

**12.1 Ecotoxicity**
Slightly to moderately toxic to aquatic life. Large discharges into the environment may contribute to lowering of water pH and be fatal to aquatic life and soil micro-organisms.

**Toxicity to fish:**
$LC_{50}$ (Bluegill sunfish): 10.5 ppm / 96h
$LC_{50}$ Gambusia affinis (Mosquito fish) - 42 mg/L - 96 h

**Toxicity to daphnia & other aquatic invertebrates**
$EC_{50}$ - Daphnia magna (Water flea) - 29 mg/L - 24 h

**12.2 Persistence and degradability**
Miscible with water and remains indefinitely in the environment as sulphate.

**12.3 Bioaccumulative Potential**
Low potential for bioaccumulation.

**12.4 Mobility in Soil**
Miscible with water and has high mobility in soil. During transport through the soil, sulphuric acid will dissolve some of the soil material; in particular, the carbonate based materials. The acid will be neutralised to some degree with adsorption of the proton also occurring on clay materials. However,

significant amounts of acid are expected to remain for transport down towards the ground water table. Upon reaching the ground water table, the acid will continue to move, now in the direction of the ground water flow. Lime addition may be required to rectify low pH resulting from sulphuric acid spillages.

**12.5 Other adverse effects**

Large discharges may contribute to the acidification of effluent treatment systems and injure sewage treatment organisms.

## 13. DISPOSAL CONSIDERATIONS

**13.1 Waste treatment methods**

Ensure waste disposal conforms to relevant local authority waste disposal regulations.

**Disposal Methods:**

Due to its inherent properties, hazardous conditions may result if material is managed improperly. Dispose of all contained and neutralised spill residue in accordance with Department of the Environment requirements. Treat empty containers as filled containers as required under the ADG Code.

## 14. TRANSPORTATION INFORMATION

Classified as a Dangerous Goods by the criteria of the ADG Code for transport by road or rail
Classified as a Dangerous Goods by the criteria of the IMDG Code for transport by sea
Classified as a Dangerous Goods by the criteria of the IATA Code for transport by air

**14.1 UN number**

**ADG :** 1830 **IMDG :** 1830 **IATA :** 1830

**14.2 Proper shipping name**

**ADG :** SULPHURIC ACID (>51%)
**IMDG :** SULPHURIC ACID (>51%)
**IATA :** SULPHURIC ACID (>51%)

**14.3 Transport hazard class**

**ADG :** 8 Corrosive **IMDG :** 8 Corrosive **IATA :** 8 Corrosive

**14.4 Packing group**

**ADG :** II **IMDG :** II **IATA :** II

**14.5 Environmental hazards**

**ADG :** No **IMDG Marine Pollutant :** No **IATA :** No

**14.6 Special precautions for users** **GTEPG :** 8A1

**14.7 Hazchem code**

**ADG :** 2P **IMDG EMS :** F-A, S-B

**14.8 Dangerous goods initial emergency response guide (SAA/SNZ HB76:2010)** 40

## 15. REGULATORY INFORMATION

**15.1 Safety, health and environmental regulations**

**Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)**
Poisons Schedule : 6

**Carcinogen classification under WHS Regulations 2011, Schedule 10**
Not listed

**Notification status**
**AICS** On the inventory or in compliance with the inventory.

## SECTION 16 OTHER INFORMATION

**Key / legend to abbreviations and acronyms used in the MSDS**

| | |
|---|---|
| ADG | Australian Dangerous Goods |
| ASCC | Australian Safety and Compensation Council |
| H290 | May be corrosive to metals |
| H314 | Causes severe skin burns and eye damage |
| IATA | International Air Transport Association |
| IMDG | International Maritime Dangerous Goods |
| Met. Corr | Corrosive to metals |
| NOHSC | National Occupational Health and Safety Commission |

| | |
|---|---|
| SUSDP | Standard for the Uniform Scheduling of Drugs and Poisons |
| TWA | Time weighted average |
| Skin Corr | Skin corrosion/irritation |
| STEL | Short term exposure level |
| SWA | Safe Work Australia |
| $LD_{50}$ | Lethal dose 50. The single dose of a substance that causes the death of 50% of an animal population from exposure to the substance by any route other than inhalation |
| $LC_{50}$ | Lethal concentration that kills 50% of an animal population within a specified time |
| $t/m^3$ | Tonnes per cubic metre |
| $mg/m^3$ | Milligrams per cubic metre |
| mg/kg | Milligrams per kilogram |
| pH | Relates to hydrogen ion concentration - this value will relate to a scale of 0 - 14, where 0 is highly acidic and 14 is highly alkaline |

### Literature references

[1] *IARC Monographs On The Evolution Of Carcinogenic Risks To Humans, Vol. 54, IARC, 1992, pp 41-130.*

### Reason(s) for Issue:

Revised primary SDS
Alignment to GHS requirements

### Disclaimer