

## SAFETY DATA SHEET

### 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

#### 1.1 Product identifier

**Product name** MAK-SU  
**Synonyms** MAK SULPHURIC ACID 34% • SULFURIC ACID 34 %

#### 1.2 Uses and uses advised against

**Uses** ACID • PH ADJUSTOR

#### 1.3 Details of the supplier of the product

**Supplier name** MAK INDUSTRIAL WATER SOLUTIONS PTY LTD  
**Address** 36 Beringarra Ave, Malaga, Western Australia, 6090, AUSTRALIA  
**Telephone** +61 8 9249 8007  
**Fax** +61 8 9249 8004  
**Email** [service.wa@makwater.com.au](mailto:service.wa@makwater.com.au)  
**Website** <http://makwater.com.au>

#### 1.4 Emergency telephone numbers

**Emergency** +61 8 9249 8007

### 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

##### Physical Hazards

Not classified as a Physical Hazard

##### Health Hazards

Skin Corrosion/Irritation: Category 1A

##### Environmental Hazards

Not classified as an Environmental Hazard

#### 2.2 GHS Label elements

**Signal word** DANGER

##### Pictograms



##### Hazard statements

H314 Causes severe skin burns and eye damage.

##### Prevention statements

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/hearing protection.

**PRODUCT NAME MAK-SU****Response statements**

|                    |                                                                                                                                  |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------|
| 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/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 CENTRE or doctor/physician.                                                                            |
| P321               | Specific treatment is advised - see first aid instructions.                                                                      |
| P363               | Wash contaminated clothing before reuse.                                                                                         |

**Storage statements**

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

**Disposal statements**

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

**2.3 Other hazards**

No information provided.

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**3. COMPOSITION/ INFORMATION ON INGREDIENTS**

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**3.1 Substances / Mixtures**

| Ingredient     | CAS Number | EC Number | Content   |
|----------------|------------|-----------|-----------|
| SULPHURIC ACID | 7664-93-9  | 231-639-5 | 34%       |
| WATER          | 7732-18-5  | 231-791-2 | Remainder |

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**4. FIRST AID MEASURES**

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**4.1 Description of first aid measures**

|                             |                                                                                                                                                                                                                                  |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye</b>                  | If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.                                         |
| <b>Inhalation</b>           | 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 (in poorly ventilated areas). Apply artificial respiration if not breathing. |
| <b>Skin</b>                 | 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 a Poisons Information Centre or a doctor.                         |
| <b>Ingestion</b>            | For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.                                                                                       |
| <b>First aid facilities</b> | 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 in contact with it. Attempting gastric lavage may result in perforating either the oesophagus or stomach. Immediately dilute the corrosive substance by having the 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.

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**5. FIRE FIGHTING MEASURES**

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**5.1 Extinguishing media**

Use an extinguishing agent suitable for the surrounding fire.

**5.2 Special hazards arising from the substance or mixture**

Non flammable. May evolve toxic gases (sulphur oxides) when heated to decomposition. May evolve flammable hydrogen gas in contact with some metals.

**5.3 Advice for firefighters**

Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

**5.4 Hazchem code**

2R  
2      Fine Water Spray.  
R      Wear liquid-tight chemical protective clothing and breathing apparatus. Dilute spill and run-off.

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**6. ACCIDENTAL RELEASE MEASURES**

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**6.1 Personal precautions, protective equipment and emergency procedures**

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Ventilate area 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 calcium hydroxide. Collect for complete neutralisation and appropriate disposal.

**6.4 Reference to other sections**

See Sections 8 and 13 for exposure controls and disposal.

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**7. HANDLING AND STORAGE**

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**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 foodstuffs. 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 protection systems.

**7.3 Specific end uses**

No information provided.

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**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

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**8.1 Control parameters****Exposure standards**

| Ingredient     | Reference      | TWA |                   | STEL |                   |
|----------------|----------------|-----|-------------------|------|-------------------|
|                |                | ppm | mg/m <sup>3</sup> | ppm  | mg/m <sup>3</sup> |
| Sulphuric acid | SWA [AUS]      | --  | 1                 | --   | 3                 |
| Sulphuric acid | SWA [Proposed] | --  | 0.1               | --   | --                |

**Biological limits**

No biological limit values have been entered for this product.

**8.2 Exposure controls**

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

**PPE**

|                    |                                                                                                                                                                                 |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye / Face</b>  | Wear splash-proof goggles.                                                                                                                                                      |
| <b>Hands</b>       | Wear PVC or rubber gloves.                                                                                                                                                      |
| <b>Body</b>        | Wear coveralls. When using large quantities or where heavy contamination is likely, wear rubber boots and a PVC apron. In a laboratory situation, wear a laboratory coat.       |
| <b>Respiratory</b> | Where an inhalation risk exists, wear a Type B (Inorganic gases and vapours) respirator. If spraying, with prolonged use, or if in confined areas, wear an Air-line respirator. |



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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### 9.1 Information on basic physical and chemical properties

|                                  |                      |
|----------------------------------|----------------------|
| <b>Appearance</b>                | COLOURLESS LIQUID    |
| <b>Odour</b>                     | CHARACTERISTIC ODOUR |
| <b>Flammability</b>              | NON FLAMMABLE        |
| <b>Flash point</b>               | NOT RELEVANT         |
| <b>Boiling point</b>             | 110°C                |
| <b>Melting point</b>             | -55.3°C              |
| <b>Evaporation rate</b>          | NOT AVAILABLE        |
| <b>pH</b>                        | < 1                  |
| <b>Vapour density</b>            | NOT AVAILABLE        |
| <b>Relative density</b>          | 1.139 to 1.836       |
| <b>Solubility (water)</b>        | SOLUBLE              |
| <b>Vapour pressure</b>           | NOT AVAILABLE        |
| <b>Upper explosion limit</b>     | NOT RELEVANT         |
| <b>Lower explosion limit</b>     | NOT RELEVANT         |
| <b>Partition coefficient</b>     | NOT AVAILABLE        |
| <b>Autoignition temperature</b>  | NOT AVAILABLE        |
| <b>Decomposition temperature</b> | NOT AVAILABLE        |
| <b>Viscosity</b>                 | NOT AVAILABLE        |
| <b>Explosive properties</b>      | NOT AVAILABLE        |
| <b>Oxidising properties</b>      | NOT AVAILABLE        |

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## 10. STABILITY AND REACTIVITY

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### 10.1 Reactivity

May be corrosive to metals.

### 10.2 Chemical stability

Potential for exothermic hazard.

### 10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

### 10.4 Conditions to avoid

Avoid contact with incompatible substances.

### 10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites), alkalis (e.g. sodium hydroxide) and some metals.

### 10.6 Hazardous decomposition products

May evolve toxic gases (sulphur oxides) when heated to decomposition.

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## 11. TOXICOLOGICAL INFORMATION

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### 11.1 Information on toxicological effects

**PRODUCT NAME MAK-SU**

**Acute toxicity** An acute oral toxicity study indicates an LD50 for sulphuric acid of 2140 mg/kg (rat). Toxic signs of oral exposure in human are of irritation/corrosion of the gastrointestinal tract.

**Information available for the ingredients:**

| Ingredient     | Oral LD50        | Dermal LD50 | Inhalation LC50                                                         |
|----------------|------------------|-------------|-------------------------------------------------------------------------|
| SULPHURIC ACID | 2140 mg/kg (rat) | --          | 18 mg/m <sup>3</sup> (guinea pig);<br>510 mg/m <sup>3</sup> /2hrs (rat) |

**Skin** Causes severe burns. Contact may result in irritation, redness, pain, rash, dermatitis and severe burns.

**Eye** Causes severe burns. Contact may result in irritation, lacrimation, pain, redness and corneal burns with possible permanent eye damage.

**Sensitisation** Not classified as causing skin or respiratory sensitisation.

**Mutagenicity** Insufficient data available to classify as a mutagen.

**Carcinogenicity** Occupational exposure to strong inorganic acid mists containing sulphuric acid is classified as carcinogenic to humans (IARC Group 1).

**Reproductive** Insufficient data available to classify as a reproductive toxin.

**STOT - single exposure** Over exposure may result in mucous membrane irritation of the respiratory tract, coughing, bronchitis, ulceration, bloody nose, lung tissue damage and deterioration of pulmonary function.

**STOT - repeated exposure** Not classified as causing organ damage from repeated exposure. Adverse effects are generally associated with single exposure.

**Aspiration** Not expected to present an aspiration hazard.

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## 12. ECOLOGICAL INFORMATION

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### 12.1 Toxicity

The manufacturer reports the following aquatic toxicity data: LC50 (Flounder) = 330 mg/L/48 hours; LC50 (Shrimp) = 80 to 90 mg/L/48 hours; LC50 (Prawn) = 42.5 ppm/48 hours. Sulphuric acid is harmful to aquatic life in very low concentrations.

### 12.2 Persistence and degradability

Sulfuric acid is a strong mineral acid that dissociates readily in water to sulfate ions and hydrated protons, and is totally miscible with water.

### 12.3 Bioaccumulative potential

Sulphuric acid is not anticipated to accumulate in living tissues.

### 12.4 Mobility in soil

Sulphuric acid is miscible with water and its dilution will increase the velocity of downward movement in the soil where it may dissolve the soil material.

### 12.5 Other adverse effects

No information provided.

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## 13. DISPOSAL CONSIDERATIONS

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### 13.1 Waste treatment methods

**Waste disposal** For small amounts (as determined by risk assessment or similar): Wearing the protective equipment detailed above, neutralise to pH 6-8 by SLOW addition to a saturated sodium bicarbonate solution or similar basic solution. Dilute with excess water and flush to drain. Waste disposal should only be undertaken in a well ventilated area. For larger amounts: Dispose in accordance with local regulations.

**Legislation** Dispose of in accordance with relevant local legislation.

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## 14. TRANSPORT INFORMATION

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CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE



|                                    | LAND TRANSPORT (ADG)                                             | SEA TRANSPORT (IMDG / IMO)                                       | AIR TRANSPORT (IATA / ICAO)                                      |
|------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|
| <b>14.1 UN Number</b>              | 2796                                                             | 2796                                                             | 2796                                                             |
| <b>14.2 Proper Shipping Name</b>   | SULFURIC ACID with not more than 51% acid or BATTERY FLUID, ACID | SULFURIC ACID with not more than 51% acid or BATTERY FLUID, ACID | SULFURIC ACID with not more than 51% acid or BATTERY FLUID, ACID |
| <b>14.3 Transport hazard class</b> | 8                                                                | 8                                                                | 8                                                                |
| <b>14.4 Packing Group</b>          | II                                                               | II                                                               | II                                                               |

**14.5 Environmental hazards**

No information provided.

**14.6 Special precautions for user**

Hazchem code 2R  
 GTEPG 8A2  
 EmS F-A, S-B

## 15. REGULATORY INFORMATION

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

**Poison schedule** Classified as a Schedule 6 (S6) Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

**Classifications** Safe Work Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals (GHS Revision 7).

**Inventory listings** **AUSTRALIA: AIIC (Australian Inventory of Industrial Chemicals)**  
 All components are listed on AIIC, or are exempt.

## 16. OTHER INFORMATION

**Additional information** ACIDS: When mixing acids with water (diluting), caution must be taken as heat will be generated which causes violent spattering. Always add a small volume of acid to a large volume of water, NEVER the reverse.

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

**PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:**

The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

**HEALTH EFFECTS FROM EXPOSURE:**

It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

**Abbreviations**

|                   |                                                                                                 |
|-------------------|-------------------------------------------------------------------------------------------------|
| ACGIH             | American Conference of Governmental Industrial Hygienists                                       |
| CAS #             | Chemical Abstract Service number - used to uniquely identify chemical compounds                 |
| CNS               | Central Nervous System                                                                          |
| EC No.            | EC No - European Community Number                                                               |
| EMS               | Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)                   |
| GHS               | Globally Harmonized System                                                                      |
| GTEPG             | Group Text Emergency Procedure Guide                                                            |
| IARC              | International Agency for Research on Cancer                                                     |
| LC50              | Lethal Concentration, 50% / Median Lethal Concentration                                         |
| LD50              | Lethal Dose, 50% / Median Lethal Dose                                                           |
| mg/m <sup>3</sup> | Milligrams per Cubic Metre                                                                      |
| OEL               | Occupational Exposure Limit                                                                     |
| pH                | relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline). |
| ppm               | Parts Per Million                                                                               |
| STEL              | Short-Term Exposure Limit                                                                       |
| STOT-RE           | Specific target organ toxicity (repeated exposure)                                              |
| STOT-SE           | Specific target organ toxicity (single exposure)                                                |
| SUSMP             | Standard for the Uniform Scheduling of Medicines and Poisons                                    |
| SWA               | Safe Work Australia                                                                             |
| TLV               | Threshold Limit Value                                                                           |
| TWA               | Time Weighted Average                                                                           |

**Report status**

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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