

## SAFETY DATA SHEET

### 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

#### 1.1 Product identifier

**Product name** MAK-HCL  
**Synonyms** HCL • HYDROCHLORIC ACID 25-36% • MAK INDUSTRIAL WATER SOLUTIONS MAK HCL

#### 1.2 Uses and uses advised against

**Uses** CHLORINATING AGENT

#### 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 1B  
 Specific Target Organ Toxicity (Single Exposure): Category 3 (Respiratory Irritation)

##### 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.  
 H335 May cause respiratory irritation.

##### Prevention statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
 P264 Wash thoroughly after handling.  
 P271 Use only outdoors or in a well-ventilated area.  
 P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

**PRODUCT NAME    MAK-HCL****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**

P403 + P233    Store in a well-ventilated place. Keep container tightly closed.  
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
HYDROCHLORIC ACID	7647-01-0	231-595-7	25 to 36%
WATER	7732-18-5	231-791-2	>60%

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**4. FIRST AID MEASURES**

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**4.1 Description of first aid measures**

**Eye**    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.

**Inhalation**    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.

**Skin**    If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water.

**Ingestion**    For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.

**First aid facilities**    Eye wash facilities and safety shower should be available.

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

Causes severe skin burns and eye damage.

**4.3 Immediate medical attention and special treatment needed**

**CORROSIVE POISONING TREATMENT:** Immediate treatment preferably in a hospital is mandatory. It is also important to attempt to discover the chemical substances ingested. 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 (chlorides) when heated to decomposition. May evolve flammable hydrogen gas when 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, protected from physical damage and sealed 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>
Hydrogen chloride	SWA [Proposed]	2 (Peak)	2.98 (Peak)	--	--
Hydrogen chloride (Hydrochloric acid)	SWA [AUS]	5 (Peak)	7.5 (Peak)	--	--

**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. When using large quantities or where heavy contamination is likely, wear a faceshield.
<b>Hands</b>	Wear full-length PVC or full-length rubber gloves.
<b>Body</b>	Wear coveralls and rubber boots and a PVC apron.
<b>Respiratory</b>	Where an inhalation risk exists, wear a Full-face Type B (Inorganic and Acid gas) respirator. At high vapour levels, wear an Air-line respirator.



## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

<b>Appearance</b>	SLIGHTLY YELLOW LIQUID
<b>Odour</b>	PUNGENT ODOUR
<b>Flammability</b>	NON FLAMMABLE
<b>Flash point</b>	NOT RELEVANT
<b>Boiling point</b>	100°C (Approximately)
<b>Melting point</b>	< 0°C
<b>Evaporation rate</b>	NOT AVAILABLE
<b>pH</b>	ACIDIC
<b>Vapour density</b>	1.3 (Air = 1)
<b>Relative density</b>	1.2
<b>Solubility (water)</b>	SOLUBLE
<b>Vapour pressure</b>	166.991 mm Hg @ 21.1°C
<b>Upper explosion limit</b>	NOT RELEVANT
<b>Lower explosion limit</b>	NOT RELEVANT
<b>Partition coefficient</b>	log Pow: 0.25
<b>Autoignition temperature</b>	NOT AVAILABLE
<b>Decomposition temperature</b>	> 1500°C
<b>Viscosity</b>	1.70 mPa·s @ 30°C
<b>Explosive properties</b>	NOT AVAILABLE
<b>Oxidising properties</b>	NOT AVAILABLE
<b>Odour threshold</b>	NOT AVAILABLE

### 9.2 Other information

<b>% Volatiles</b>	> 60 % (Water)
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## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

May be corrosive to metals.

### 10.2 Chemical stability

Stable under recommended conditions of storage.

### 10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

### 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), alkalis (e.g. sodium hydroxide) and metals.

### 10.6 Hazardous decomposition products

May evolve toxic gases (chlorides) when heated to decomposition.

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

**Acute toxicity** Ingestion may result in severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

**Information available for the ingredients:**

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
HYDROCHLORIC ACID	2210 mg/kg (rat)	--	1108 ppm/1hr (human - respiratory irritation)

**Skin** Causes severe burns. Contact may result in irritation, redness, pain, rash, dermatitis, blistering and severe burns. May cause discolouration of the skin. Effects may be delayed.

**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** Not classified as a mutagen.

**Carcinogenicity** Not classified as a carcinogen.

**Reproductive** Not classified as a reproductive toxin.

**STOT - single exposure** Over exposure may result in irritation of the nose and throat, coughing and bronchitis. High level exposure may result in intense thirst, ulceration, lung tissue damage, chemical pneumonitis and pulmonary oedema.

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

**Aspiration** Not classified as causing aspiration.

## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

Harmful effect due to pH shift. Discharge into the environment should be avoided.

### 12.2 Persistence and degradability

Expected to be rapidly biodegradable.

### 12.3 Bioaccumulative potential

Bioaccumulation is not expected.

### 12.4 Mobility in soil

If hydrochloric acid is spilled on soil, it will infiltrate. During its transport through soil, the acid will dissolve some of the soil material, in particular carbonates, and will be neutralised to some degree. However, significant amounts of acid are expected to remain for transport down to groundwater.

### 12.5 Other adverse effects

Avoid release to the environment.

## 13. DISPOSAL CONSIDERATIONS

### 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.

## 14. TRANSPORT INFORMATION

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>	1789	1789	1789
<b>14.2 Proper Shipping Name</b>	HYDROCHLORIC ACID	HYDROCHLORIC ACID	HYDROCHLORIC 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**

<b>Hazchem code</b>	2R
<b>GTEPG</b>	8A1
<b>EmS</b>	F-A, S-B

## **15. REGULATORY INFORMATION**

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

<b>Poison schedule</b>	Classified as a Schedule 6 (S6) Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).
<b>Classifications</b>	Safe Work Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals (GHS Revision 7).
<b>Inventory listings</b>	<b>AUSTRALIA: AIIC (Australian Inventory of Industrial Chemicals)</b> All components are listed on AIIC, or are exempt.

## **16. OTHER INFORMATION**

<b>Additional information</b>	<p><b>RESPIRATORS:</b> 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.</p> <p><b>ACIDS:</b> 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.</p> <p><b>PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:</b> 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.</p> <p><b>HEALTH EFFECTS FROM EXPOSURE:</b> 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.</p>
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**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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