MATERIAL SAFETY DATA SHEET

HYDROCHLORIC ACID 30-33%

Product Name:

Classified as hazardous according to criteria of NOHSC

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1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Product Name	**HYDROCHLORIC ACID 30-33%**
Product Code	3300
Product Use	High purity synthesised Hydrochloric Acid.
Company Name	COSMO CHEMISTRY INDIA

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2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Characterization

Liquid

Ingredients Name	CAS	Proportion
Hydrogen chloride	7647-01-0	32-33 %w/w
Water	—	To 100%

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3. HAZARDS IDENTIFICATION

Causes burns.

Irritating to respiratory system.

Other Information

Poisons Schedule **S6**

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4. FIRST AID MEASURES

Inhalation

Remove to fresh air, apply artifical respiration if necessary.

Obtain medical attention urgently.

Ingestion

If victim is conscious, rinse acid from the mouth with plenty of water. If the victim can swallow, give water or milk to dilute the ingested material.

DO NOT induce vomiting (vomiting may occur naturally).

Seek medical advice.

HYDROCHLORIC ACID 33%

Skin

Wash affected areas with warm water. Remove contaminated clothing and launder before re-use. Seek medical attention **AFTER** first aid treatment.

Suggested first aid treatment:

Dilute **1 teaspoon of Bicarbonate of Soda** in **1 cup of water.**

Apply a pack soaked in solution to the affected area - replenish pack by feeding solution onto pack for **10-15 minutes.**

Eye

If in eyes, hold eyelids open and wash with copious amounts of water for at least **15 minutes.**

If the eyes have been exposed to the liquid, have the patient seen by a doctor **AFTER** first aid has been given.

First Aid Facilities

If poisoning occurs, contact a doctor or **Poisons Information Centre on 13 11 26 (Australia).**

Advice to Doctor

Treat symptomatically.

Hydrochloric acid is highly corrosive to skin, mucous membranes and lungs.

Keep patient under observation for **24 hrs.** If lungs appear to have been affected, pulmonary oedema is possible.

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5. FIRE FIGHTING MEASURES

Extinguishing Media

The product is **not flammable.**

Water fog can be used to knock down vapour clouds.

Use media required by the source of the fire. Media compatible with hydrochloric acid include **dry chemical, carbon dioxide, water spray and foam.**

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Hazardous Combustion Products

If involved in a fire, the product will release large quantities of **hydrogen chloride gas** which is very corrosive.

If possible, use water to cool containers involved in a fire and remove as soon as safe to do so.

Sealed containers involved in a fire may rupture due to a build-up of pressure.

Decomposition Temp.

N/A

Protective Equipment

If fighting a fire in which this product is involved, **forced air breathing equipment must be worn.**

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6. ACCIDENTAL RELEASE MEASURES

Spills & Disposal

Hydrochloric acid is completely soluble in water.

Clean-up Methods - Small Spillages

Dilute with a lot of water and wash away.

Work from up-wind.

Clean-up Methods - Large Spillages

Only persons wearing full protective gear, including forced air breathing equipment, should attempt to deal with either a major leak or a major spill.

Contain spill, if at all possible, using solid absorbents such as **soil, clay or others, eg vermiculite.**

Make every effort to prevent a major discharge of the product into waterways or sewers.

NOTE: A vapour cloud of acid fumes can be (partially) knocked down with water spray or water fog.

Larger spills or acid soils can be treated (neutralised) with **lime or soda ash.**

WARNING: Concentrated acid can react violently with these materials, thus neutralising agents must be added cautiously.

Some dilution with water will help, provided the additional volume of liquid can be contained.

Once neutralised, the liquid or solid absorbent is highly concentrated in chloride salts.

Disposal should be decided together with local authorities.

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7. HANDLING AND STORAGE

Storage

Store in closed containers in a clean, cool, open or well ventilated area.

Keep out of sun.

Area should have acid resistant floors and approved drainage.

Keep away from oxidising agents, alkaline materials and any other products which are considered incompatible with strong acids.

Do not store near, or mix with **cyanides, sulphides or formaldehyde.**

When mixing with water, **always add acid to water, not in reverse.**

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

National Exposure Standards

TLV = 5 ppm, 7.5 mg/m³ (peak). ACGIH.

TLV is the level below which almost all people can work for **8 hrs a day** for a lifetime without adverse health effects.

Peak notation means that the limit must not be exceeded even for short periods.

Personal Protective Equipment

Eye wash stations and safety showers should be readily accessible to anyone handling this product.

The minimum personal protection is:

- Cotton overalls buttoned to the neck and wrist
- PVC or rubber gloves
- Full chemical goggles close fitting to the face
- Impervious footwear

(Note: PVC, rubber, neoprene, buna-N and polythene are resistant materials.

PVA, nylon or polyesters are **not resistant** and should not be used in contact with this product.)

Eng. Controls

Forced ventilation is required when handling this product.

If possible, fully closed systems should be used.

Engineering controls in general should be such as to not exceed the TLV for this product, **5 ppm (peak notation).**

If engineering controls are not effective in complete control of the vapours, **SCBA (self contained breathing apparatus)** should be worn.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Property	**Value**
Appearance	Colourless or slightly yellow fuming liquid
Odour	Irritating, pungent acidic odour
Decomposition Temperature	N/A
Melting Point	<-20°C
Boiling Point	109°C
Solubility in Water	Soluble in water
Specific Gravity (H_2O = 1)	1.161 @ 20°C
pH Value	-1
Vapour Pressure	Unknown, high, varies markedly with temperature
Vapour Density (Air = 1)	1.3
Volatile Component	100%
Flash Point	Not flammable
Flammability	Not flammable
Ignition Temperature	N/A

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10. STABILITY AND REACTIVITY

Stability

Hydrochloric acid is stable under normal conditions in the containers supplied.

Hazardous Polymerization

Hazardous polymerisation is not possible.

Hazardous Reaction

Hydrochloric acid can react violently with strong basic materials such as **caustic soda, soda ash, sodium bicarbonate and lime.**

It can react vigorously with amines and release toxic amine vapours.

It reacts with sulphides and cyanides to release highly toxic gases.

Reaction with formaldehyde will generate a potent carcinogen.

It will react with most metals to:

a) corrode the metal and;

b) release hydrogen gas;

In confined spaces, hydrogen gas can form explosive mixtures with air.

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11. TOXICOLOGICAL INFORMATION

Toxicology Information

The corrosive properties of hydrochloric acid are the major risk in handling the material.

Hydrogen chloride causes severe irritation of the eye and respiratory tract and, to a lesser extent, the skin.

Inhalation causes irritation and damage to mucous membranes.

Hydrogen chloride is usually detectable by odour at **1 - 5 ppm** and becomes objectionable at **5 - 10 ppm.**

Prolonged occupational exposure to excessive hydrogen chloride concentration causes increased incidence of chronic bronchitis or stomach and intestinal disorders due to abnormal acid levels.

Increased incidence of a characteristic dental decay has also been observed with prolonged exposure, even at apparently tolerable levels.

A concentration **>10 ppm** is strongly irritating, even when some acclimatization has occurred.

Inhalation

Vapour or mist can cause irritation of mucous membranes resulting in coughing or choking.

Permanent scarring of mucous membranes (mouth, nose and throat) may result.

Serious exposure of the lung can result in pulmonary oedema.

Ingestion

Ingestion of any large amount is most unlikely as the product will cause instant pain in the mouth.

If ingestion occurs, burns of the mouth, aesophagus and stomach will result causing pain, nausea, vomiting, thirst, diarrhea, circulatory collapse and possibly death.

Skin

Concentrated acid is extremely irritant and can cause burns unless washed off immediately.

Eye

Hydrochloric acid is extremely corrosive and can cause eye irritation, severe burns and permanent loss of sight.

Immediate first aid is essential.

Chronic Effects

Chronic exposure to hydrochloric acid has caused erosion of teeth and bleeding of the nose and gums.

Some people exposed to dilute solutions over lengthy periods have developed dermatitis.

Acute Toxicity - Oral

LD50 (oral, rat)

238 - 277 mg/kg

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Acute Toxicity - Inhalation

Test	Result
LC50 (rat)	4.2 - 4.7 mg/l (1 hour)
LC50 (rat)	5.7 - 7.0 mg/l (30 min)
LC50 (rat)	23.7 - 60.9 mg/l (5 min)
LCL0 human	1,300 ppm (30 min)
LCL0 human	3,000 ppm (5 min)

12. ECOLOGICAL INFORMATION

Environ. Protection

The major hazard of this product is its corrosiveness.

It will corrode metals and burn skin and vegetation.

13. DISPOSAL CONSIDERATIONS

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a **RCRA approved waste facility.**

Processing, use or contamination of this product may change the waste management options.

State and local disposal regulations may differ from federal disposal regulations.

Dispose of container and unused contents in accordance with federal, state and local requirements.

14. TRANSPORT INFORMATION

Item	Details
U.N. Number	**1789**
Proper Shipping Name	**HYDROCHLORIC ACID**
DG Class	**8**
Hazchem Code	**2R**
Packaging Method	**3.8.8RT8**
Packing Group	**II**
Storage and Transport	Considered dangerous for transport by the Australian Code for the Transport of Dangerous Goods by Road and Rail.
EPG Number	**8A1**
IERG Number	**40**

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15. REGULATORY INFORMATION

Risk Phrase

Code Description

R34 Causes burns.

R37 Irritating to respiratory system.

Safety Phrase

Code	Description
S1/2	Keep locked up and out of reach of children.
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
S45	In case of accident or if you feel unwell seek medical advice immediately.

Code	Description
S9	Keep container in a well ventilated place.

Poisons Schedule

S6

Packaging & Labelling

POISON

KEEP OUT OF REACH OF CHILDREN

READ SAFETY DIRECTIONS BEFORE OPENING OR USING

Hazard Category

Corrosive

16. OTHER INFORMATION

Empirical Formula & Structural Formula

HCl

Revisions Highlighted

The MSDS was reviewed.

Minor changes were made to the information.

The MSDS is now issued in a **16 header format.**