Material Safety Data Sheets

Revision 2

1. IDENTIFICATION

Product Name	**Hydrochloric Acid 0.5 Normal(0.5 mol/l)**
Other Names	**Aqueous Hydrogen Chloride ,Chlorohydric Acid; HYDROCHLORIC ACID; Hydrogen Chloride; Muriatic Acid**
Uses	**Volumetric solution**
Chemical Family	**No Data Available**
Chemical Formula	**HCl**
Chemical Name	**Hydrochloric Acid Solution 0.5 Normal**
Product Description	**No Data Available**
Company	**Arman sina.co**
Contact Information	**info@armansina.com** **www.armansina.com**

2. HAZARD IDENTIFICATION

Hazard Categories	**Corrosive**
Risk Phrases	**Causes severe burns.**
	Irritating to respiratory system.
	Risk of serious eye damage.
Safety Phrases	**Do not breathe fumes/spray/vapour.**
	Avoid contact with skin and eyes.
	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	Wear suitable protective clothing, gloves and eye/face protection.
	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
	Keep container tightly closed and in a well-ventilated place.

Symbol

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Hydrochloric Acid	HCl	7647-01-0	≥ 1% , ≤3%
Water	H2O	7732-18-5	Balanced%

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	**FIRST AID FACILITIES: Potable water should be available to rinse eyes or skin. Provide eye baths and safety showers. For advice, contact a Poisons Information Centre (Phone Australia 131126, New Zealand 0800 764 766) or a doctor. If swallowed, do NOT induce vomiting.**
Eye	**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.**
Skin	**If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing until advised to stop by the Poisons Information Centre or a doctor.**
Inhaled	**Remove from source of exposure to fresh air. Seek medical assistance if the effects persist. ** SHOW THIS SAFETY DATA SHEET TO A DOCTOR ****
Advice to Doctor	**Treat symptomatically and as for strongly acidic corrosive material. Can cause corneal burns.**
Medical Conditions Aggravated by Exposure	**No information available on medical conditions aggravated by exposure to this product.**

5. FIRE FIGHTING MEASURES

General Measures	**If safe to do so, remove containers from the path of fire.**
Flammability Conditions	**Contact with metals may liberate hydrogen gas which is extremely flammable.**
Extinguishing Media	**Water spray, foam, carbon dioxide or dry chemical powder.**
Fire and Explosion Hazard	**The product is non-combustible; however, the packaging material may burn to emit noxious fumes.**
Hazardous Products of Combustion	**The packaging material may burn to emit noxious fumes. Reacts violently with alkalis. Reacts exothermically on dilution with water. Reacts with chlorine products and oxidising agents liberating toxic chlorine gas. Corrosive to many metals with the liberation of extremely flammable hydrogen gas.**
Special Fire Fighting Instructions	**Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk. Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.**
Personal Protective Equipment	**Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves) and acid-resistant chemical splash unit.**
Flash Point	**No Data Available**
Lower Explosion Limit	**No Data Available**
Upper Explosion Limit	**No Data Available**
Auto Ignition Temperature	**No Data Available**
Hazchem Code	**2R**

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	**Spillages are slippery. Ensure adequate ventilation, work up wind or increase ventilation. Keep spectators away - rope off the area. Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contamination and inhalation of vapours. Contain the spill and prevent run off into confined areas, drains and waterways. Vapour-suppressing foam may be used to control vapours.**
Clean Up Procedures	**Absorb with dry earth, sand or other non-combustible material. Neutralise with lime or soda ash. Use clean non-sparking tools to collect and seal in properly labelled drums for disposal in an area approved by local authority by-laws. Incineration of disposed material is not recommended, as it is unlikely to adequately burn.**
Containment	**Stop leak if safe to do so.**
Decontamination	**Wash area down with excess water to remove residual material.**
Environmental Precautionary Measures	**Do not allow product to reach drains, sewers or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Authority.**
Evacuation Criteria	**Evacuate all unnecessary personnel.**

Personal Precautionary Measures Personnel involved in the clean up should wear full protective clothing as listed in section 8.

7. HANDLING AND STORAGE

Handling	Keep containers closed at all times - check regularly for leaks or spills. Transport and store upright. Addition to water releases heat which can result in violent boiling and splattering. Always add slowly and in small amounts. Never add water to acids - always add acids to water. Avoid eye contact and repeated or prolonged skin contact and breathing in vapour, mists and aerosols. Do not eat, drink or smoke in contaminated areas. Always remove contaminated clothing and wash hands before eating, drinking, smoking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use. Do not combine part drums of the same product, as this may be a source of contamination. Do not mix with other chemicals.
Storage	Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use to ensure contamination does not occur. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 10. Keep out of direct sunlight. Keep away from foodstuffs. This material is a Scheduled Poison S6 and must be stored, maintained and used in accordance with the relevant regulations. This product has a UN classification of 1789 and a Dangerous Goods Class 8 (Corrosive) according to The Australian Code for the Transport of Dangerous Goods By Road and Rail.
Container	Container type/packaging must comply with all applicable local legislation. Store in original packaging as approved by manufacturer.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	The following exposure standard has been established by The Australian Safety and Compensation Council (ASCC); Hydrochloric Acid CAS 7647-01-0: TWA = 5ppm Peak Limitation (7.5 mg/m3 Peak Limitation) NOTE: The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. Peak limitation is a ceiling concentration which should not be exceeded over a measurement period which should be as short as possible but not exceeding 15 minutes. These 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 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.
Exposure Limits	No Data Available
Biological Limits	No information available on biological limit values for this product.
Engineering Measures	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Adequate ventilation should be provided so that exposure limits are not exceeded. If inhalation risk exists then use with local exhaust ventilation or while wearing a suitable respirator. Keep containers closed when not in use.
Personal Protection Equipment	RESPIRATOR: Avoid breathing mist, sprays or vapours. Where ventilation is not adequate, respiratory protection may be required. Any air-purifying respirator with an acid gas filters or any chemical cartridge respirator with an acid gas cartridge(s) providing protection against the compound of concern (AS/NZS1715/1716). EYES: Wear safety glasses/goggles with side shield protection and/or full-face shield (AS1336/1337). HANDS: Wear elbow-length laminate film, natural rubber, nitrile, neoprene, neoprene/natural rubber blend or PVC impervious gloves. Always check with the glove manufacturer or your personal protective equipment supplier regarding the correct type of glove to use. (AS2161). CLOTHING: Wear waterproof apron, coveralls, trousers, long sleeved shirt, closed in shoes and/or safety footwear (AS3765/2210).
Special Hazards Precaustions	Protective equipment must be worn at all times. Risk assessments should always be conducted to identify the hazards and in turn determine the appropriate personal protective equipment for the hazard.
Work Hygienic Practices	No Data Available

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Liquid
Odour	Odour of Hydrogen Chloride Gas
Colour	Clear
pH	<1.0 Neat
Vapour Pressure	11-115 mmHg (@ No Data Available)
Relative Vapour Density	1.26 Air = 1
Boiling Point	No Data Available

Melting Point	**No Data Available**
Freezing Point	**No Data Available**
Solubility	**This product is completely soluble in water**
Specific Gravity	**1.01**
Flash Point	**No Data Available**
Auto Ignition Temp	**No Data Available**
Evaporation Rate	**<1.0**
Bulk Density	**No Data Available**
Corrosion Rate	**No Data Available**
Decomposition Temperature	**No Data Available**
Density	**No Data Available**
Specific Heat	**No Data Available**
Molecular Weight	**No Data Available**
Net Propellant Weight	**No Data Available**
Octanol Water Coefficient	**No Data Available**
Particle Size	**No Data Available**
Partition Coefficient	**No Data Available**
Saturated Vapour Concentration	**No Data Available**
Vapour Temperature	**No Data Available**
Viscosity	**No Data Available**
Volatile Percent	**No Data Available**
VOC Volume	**No Data Available**
Additional Characteristics	**No Data Available**
Potential for Dust Explosion	**Product is a liquid.**
Fast or Intensely Burning Characteristics	**No Data Available**
Flame Propagation or Burning Rate of Solid Materials	**No Data Available**
Non-Flammables That Could Contribute Unusual Hazards to a Fire	**No Data Available**
Properties That May Initiate or Contribute to Fire Intensity	**No Data Available**
Reactions That Release Gases or Vapours	**Corrosive to many metals with the liberation of extremely flammable hydrogen gas.**
Release of Invisible Flammable Vapours and Gases	**No Data Available**

10. STABILITY AND REACTIVITY

General Information	**Corrosive Liquid.**
Chemical Stability	**Product is stable under normal conditions of use, storage and temperature. The shelf life is 2 years.**
Conditions to Avoid	**Do not combine part drums of the same product, as this may be a source of contamination.**
Materials to Avoid	**Chlorine containing products, alkalis, organic materials, aluminium, tin or zinc coated metals.**
Hazardous Decomposition Products	**The packaging material may burn to emit noxious fumes. Reacts violently with alkalis. Reacts exothermically on dilution with water. Reacts with chlorine products and oxidising agents liberating toxic chlorine gas. Corrosive to many metals with the liberation of extremely flammable hydrogen gas.**
Hazardous Polymerisation	**Reacts violently with alkalis. Reacts exothermically on dilution with water. Reacts with chlorine products and oxidising agents liberating toxic chlorine gas. Corrosive to many metals with the liberation of extremely flammable hydrogen gas.**

11. TOXICOLOGICAL INFORMATION

General Information	**No toxicity data for this specific product, however toxicity data for the hazardous ingredient is listed below.** **TOXICITY DATA FOR HYDROCHLORIC ACID:** **Oral LD50 (rat) 900 mg/kg** **Inhalation LC50 (rat) 3124 ppm/1h** **Inhalation LC50 (mouse) 1108 ppm/1h**
EyeIrritant	**Highly corrosive to eyes; contact can cause corneal burns. Contamination of eyes can result in permanent injury.**
Ingestion	**Swallowing can result in nausea, vomiting, diarrhoea, abdominal pain and chemical burns to the gastrointestinal tract.**
Inhalation	**Breathing in mists or aerosols may produce respiratory irritation.**
SkinIrritant	**Highly corrosive to skin - may cause skin burns.**
Carcinogen Category	**No Data Available**

12. ECOLOGICAL INFORMATION

Ecotoxicity	**ECOTOXICITY DATA FOR HYDROCHLORIC ACID:** **LC50 Mosquito fish (female) 282 mg/L/24hr** **LC50 Shore Crab 240 mg/L/48hr** **LC50 Sand shrimp 260 mg/L/48hr**
Persistence/Degradability	**No Data Available**
Mobility	**No Data Available**
Environmental Fate	**Avoid contaminating waterways. The product is highly acidic. If large spills occurred a water pH drop could be responsible for an environmental effect on aquatic organisms.**
Bioaccumulation Potential	**No Data Available**
Environmental Impact	**No Data Available**

13. DISPOSAL CONSIDERATIONS

General Information	**Dispose of in accordance with all local regulations. All empty packaging should be disposed of in accordance with Local Regulations or recycled/reconditioned at an approved facility.**
Special Precautions for Land Fill	**Contact a specialist disposal company or the local waste regulator for advice. The product is suitable for disposal by landfill through an approved agent. Incineration of the product is not recommended, as it is unlikely to adequately burn.**

14. TRANSPORT INFORMATION

Land Transport

Proper Shipping Name	**HYDROCHLORIC ACID**
Class	**8 Corrosive Substances**
Subsidiary Risk(s)	**No Data Available**
ERG	**157 Substances - Toxic and/or Corrosive (Non-Combustible / Water-Sensitive)**
UN Number	**1789**
Hazchem	**2R**
Pack Group	**II**
Special Provision	**No Data Available**

Sea Transport
IMDG

Proper Shipping Name	**HYDROCHLORIC ACID**
Class	**8 Corrosive Substances**
Subsidiary Risk(s)	**No Data Available**
UN Number	**1789**
Hazchem	**2R**
Pack Group	**II**
Special Provision	**No Data Available**
EMS	**FA,SB**
Marine Pollutant	**No**

Air Transport
IATA

Proper Shipping Name	**HYDROCHLORIC ACID**
Class	**8 Corrosive Substances**
Subsidiary Risk(s)	**No Data Available**
UN Number	**1789**
Hazchem	**2R**
Pack Group	**II**
Special Provision	**No Data Available**

15. OTHER INFORMATION

Revision	**2**
Key/Legend	**< Less Than** **> Greater Than** **atm Atmosphere** **CAS Chemical Abstracts Service (Registry Number)** **cm Square Centimetres** **CO2 Carbon Dioxide** **COD Chemical Oxygen Demand** **Degrees Celcius** **Degrees Farenheit** **g Grams** **g/cm Grams per Cubic Centimetre** **g/l Grams per Litre** **HSNO Hazardous Substance and New Organism** **IDLH Immediately Dangerous to Life and Health** **immiscible Liquids are insoluable in each other.** **inHg Inch of Mercury** **inH2O Inch of Water** **K Kelvin** **kg Kilogram** **kg/m Kilograms per Cubic Metre** **lb Pound** **LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.** **LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.** **ltr or L Litre** **m Cubic Metre** **mbar Millibar** **mg Milligram** **mg/24H Milligrams per 24 Hours** **mg/kg Milligrams per Kilogram** **mg/m Milligrams per Cubic Metre** **Misc or Miscible Liquids form one homogeneous liquid phase regardless of the amount of either component present.** **mm Millimetre** **mmH2O Millimetres of Water** **mPa.s Millipascals per Second** **N/A Not Applicable** **NIOSH National Institute for Occupational Safety and Health** **NOHSC National Occupational Heath and Safety Commission**

OECD Organisation for Economic Co-operation and Development
Oz Ounce
PEL Permissible Exposure Limit
Pa Pascal
ppb Parts per Billion
ppm Parts per Million
ppm/2h Parts per Million per 2 Hours
ppm/6h Parts per Million per 6 Hours
psi Pounds per Square Inch
R Rankine
RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value
tne Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight