SAFETY DATA SHEET

HYDROCHLORIC ACID

CAS No.: 7647-01-0

This Safety Data Sheet is issued by Suraj Chemicals as the distributor/supplier of record, based on manufacturer and published GHS / regulatory reference data for this substance. Users should also consult the specific manufacturer's SDS where available.

1. IDENTIFICATION

GHS Product identifier

HYDROCHLORIC ACID
Muriatic Acid
CAS: 7647-01-0

Other means of identification

Formula: HCl (aqueous solution)

Recommended use of the chemical and restrictions on use

Relevant uses: Manufacture of chlorinated organic chemicals, dyes and dye intermediates, leather tanning, ore refining, rubber industry, pH correction and descaling. For industrial user only.

Uses advised against: All uses not specified in this section or in section 7.3.

Supplier's details

SURAJ CHEMICALS
No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India
Tel: +91 - 7092722822, +91 - 9840284032 / +91 - 44 - 25393652, 42130281
Email: sales@surajchemicals.com | Website: www.surajchemicals.com
GST No: 33ACEPV8190L1ZZ

Emergency phone number

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), using the well-established public/harmonised classification for Hydrochloric Acid (CAS 7647-01-0) consistent with the source data (Corrosive Substance, Class 8):

Skin Corr. 1B	Skin corrosion, Category 1B, H314
STOT SE 3	Respiratory tract irritation, single exposure, Category 3, H335

GHS label elements, including precautionary statements

GHS: Danger

Hazard statements

Skin Corr. 1B: H314 – Causes severe skin burns and eye damage.
STOT SE 3: H335 – May cause respiratory irritation.

Precautionary statements

P260: Do not breathe mist/vapours/fumes.
P264: Wash hands thoroughly after handling.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
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 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 CENTER/doctor.
P405: Store locked up.
P501: Dispose of contents/container in accordance with local regulations on hazardous waste.

Other hazards which do not result in classification

Non-combustible, but decomposes at high temperature (approx. 1000°C) into chlorine and hydrogen gases.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Chemical description: Hydrochloric Acid, aqueous solution

In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 7647-01-0	Hydrochloric Acid (Hydrogen Chloride, aqueous) — Skin Corr. 1B: H314; STOT SE 3: H335 – Danger	Technical/commercial grade (typically 30–35%)
—	Water (solvent)	Balance

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

Mixtures

Aqueous solution – see composition table above.

4. FIRST AID MEASURES

Description of necessary first-aid measures

Request medical assistance immediately, showing the SDS of this product.

By inhalation

Move the victim to fresh air. If not breathing, give artificial respiration. Obtain medical attention immediately.

By skin contact

Flush affected area with plenty of running water and obtain medical attention immediately.

By eye contact

Flush affected area with plenty of running water and obtain medical attention immediately.

By ingestion/aspiration

Have victim rinse mouth thoroughly with water. Have victim drink large amounts of water. Never give anything by mouth to an unconscious person. Obtain medical attention immediately.

Most important symptoms/effects, acute and delayed	May cause irritation and burns to skin and eyes; may cause severe damage in case of eye splashes. Inhalation of vapours/mist may produce severe irritation of the upper respiratory tract. Can burn the mouth and digestive tract if swallowed.
Indication of immediate medical attention and special treatment needed, if necessary	Not relevant. Treat as chemical burn.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	**Suitable:** Product is non-combustible; use extinguishing media appropriate for the surrounding fire. **Unsuitable:** None known (not applicable/product is non-combustible).
Specific hazards arising from the chemical	Non-combustible, but decomposes at higher temperatures into chlorine and hydrogen. Reacts with many metals to liberate flammable hydrogen gas.
Special protective actions for fire-fighters	Wear self-contained breathing apparatus set and full protective clothing. **Additional provisions** Cool fire-exposed containers with water spray from a safe distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	**For non-emergency personnel** Avoid skin and eye contact. Avoid inhaling fumes. Use appropriate personal protective equipment. **For emergency responders** Wear protective equipment. Keep unprotected persons away.
Environmental precautions	Avoid generating fumes. Prevent material entering sewers or confined spaces.
Methods and materials for containment and cleaning up	Contain the spill. Small acid spillage should be neutralised using soda ash and/or lime and flushed with a large quantity of water. Ample ventilation should be provided at the place.
Reference to other sections	See sections 8 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling

A. General precautions for safe use
Avoid contact with skin and eyes. Wear personal protective equipment. Avoid generating fumes/mists. Proper ventilation is required.

B. Technical recommendations for the prevention of fires and explosions
Not applicable – product is non-combustible; avoid contact with reactive metals that may liberate flammable hydrogen gas.

C. Technical recommendations on general occupational hygiene
Avoid direct contact or vapour inhalation. Wash hands thoroughly before eating, drinking or using the toilet. Do not eat or smoke in the work area.

D. Technical recommendations to prevent environmental risks
Avoid generating fumes and discharge to drains/watercourses.

Conditions for safe storage, including any incompatibilities

A. Specific storage requirements

Storage area	Cool, clean and well-ventilated area
Note	Keep away from direct sunlight

B. General conditions for storage
Store in acid-resistant (HDPE/PP/rubber-lined) containers, away from bases, reducing agents, metals and combustible materials.

Specific end use(s)

Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Identification	Occupational Exposure Limit Type	Value
Hydrogen Chloride CAS: 7647-01-0	Time Weighted average concentration (8 hrs) (ACGIH TLV-Ceiling)	2 ppm
	Short-term exposure limit	Not established for this grade

Appropriate engineering controls

Adequate ventilation. Avoid fume and mist generation. Use personal protective equipment.

B. Respiratory protection
Anti-acid fumes respirator.

C. Specific protection for the hands
Rubber gloves.

D. Eye and face protection
Chemical goggles, face shield.

E. Bodily protection
Rubber or PVC apron/suit along with gum boots.

F. Additional emergency measures
Emergency shower and eyewash stations should be available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	
Physical state at 20°C	Liquid
Color	Colourless
Odor	Pungent
Volatility	
Boiling point	108°C
Freezing point	Approx. -42°C (technical/commercial grade)
Evaporation rate	Not applicable
Product Description	
Vapour density (Air=1)	1.27
pH	Acidic (<1)
Solubility in water	Miscible
Conductivity	Not known
Volatiles	Non-volatile (as solution)
Flammability	
Flash Point (Closed Cup)	Not applicable
Flammability (solid, gas)	Not applicable
Explosive properties	Not applicable

Other information

Stability	Separates into chlorine and hydrogen if heated to around 1000°C
Corrosive to metals	Yes – reactive with most metals and their alloys

10. STABILITY AND REACTIVITY

Reactivity
Reactive with most metals and their alloys, bases, alkalis, unsaturated organic products, reducing agents, carbides, explosives, etc.

Chemical stability
The product separates into chlorine and hydrogen if heated to around 1000°C; otherwise stable under recommended storage conditions.

Possibility of hazardous reactions
Reacts with active metals to liberate flammable hydrogen gas; reacts violently with strong bases and oxidisers.

Conditions to avoid

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Decomposes at high temperature	Keep away from direct sunlight	Not applicable

Incompatible materials

Bases / Alkalis	Reducing Agents	Carbides / Explosives	Reactive Metals
Avoid direct contact	Avoid direct contact	Avoid direct contact	Avoid contact (liberates hydrogen)

Hazardous decomposition products
Chlorine gas is liberated on decomposition at high temperature.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect)
Can burn mouth and digestive tract.

B. Inhalation (acute effect)
Inhalation of vapours or mist may produce severe irritation of the upper respiratory tract.

C. Contact with skin and eyes (acute effect)
May cause irritation and burns. May cause severe damage in case of eye splashes.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity)
Classification criteria are not met based on available data.

E. Sensitizing effects
Not known to be a skin or respiratory sensitiser.

F. Specific target organ toxicity (STOT) – single exposure
May cause respiratory irritation.

G. Specific target organ toxicity (STOT) – repeated exposure
Classification criteria are not met based on available data.

H. Aspiration hazard
Classification criteria are not met based on available data.

Product-specific toxicological information

Identification	Acute Toxicity	Genus
Hydrochloric Acid CAS: 7647-01-0	LD50 oral: 900 mg/kg	Rabbit

12. ECOLOGICAL INFORMATION

Toxic to aquatic organisms; strongly acidic.

Toxicity
Ecotoxicity: Toxic. No further product-specific aquatic toxicity data available from the source; effects on aquatic life are principally due to pH depression.

Persistence and degradability
Not determined

Bioaccumulative potential
Not determined

Mobility in soil

Koc	Henry	Dry Soil	Moist Soil
Not relevant	Not relevant	No	No

Results of PBT and vPvB assessment
Non-applicable

Other adverse effects
Behaviour in sewage: Not known

13. DISPOSAL CONSIDERATIONS

Disposal methods

Neutralization with alkaline material (e.g. soda ash or lime) is usually required before disposal. Refer to national and local regulations on waste management for its disposal.

14. TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR/RID)

14.1 UN number	UN1789
14.2 UN proper shipping name	HYDROCHLORIC ACID
14.3 Transport hazard class(es)	8
14.4 Packing group	II
14.5 Environmental hazard	No
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk	Not relevant

Transport of dangerous goods by sea (IMDG)

14.1 UN number	UN1789
14.2 UN proper shipping name	HYDROCHLORIC ACID
14.3 Transport hazard class(es)	8 (IMDG Page No.: 8102)
14.4 Packing group	II
14.5 Marine pollutant	No
14.6 Special precautions for user	Not relevant
14.7 Transport in bulk	Not relevant

Transport of dangerous goods by air (IATA/ICAO)

14.1 UN number	UN1789
14.2 UN proper shipping name	HYDROCHLORIC ACID
14.3 Transport hazard class(es)	8
14.4 Packing group	II
14.5 Environmental hazard	No
14.6 Special precautions for user	Not relevant
14.7 Transport in bulk	Not relevant

15. REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product in question

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation

Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
IS 6164 – 1971 Code of Safety for Hydrochloric Acid
ITC Classification: 28061000

16. OTHER INFORMATION

Legislation related to safety data sheets

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3

H314: Causes severe skin burns and eye damage.
H335: May cause respiratory irritation.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources

Original manufacturer's Material Safety Data Sheet (Grasim Industries Limited); IS 6164–1971; CHEMINFO of the Canadian Centre for Occupational Health and Safety; well-established public GHS classification data for CAS 7647-01-0.

Abbreviations and acronyms

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | LD50: Lethal Dose 50 | TLV: Threshold Limit Value | ACGIH: American Conference of Governmental Industrial Hygienists

Disclaimer: The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

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