SAFETY DATA SHEET

1. Identification

Product identifier **HYDROCHLORIC ACID, 3 N**

Other means of identification

Product code 9333

Synonym(s) MURIATIC ACID

Recommended use manufacture of other chemical products professional, scientific and technical activities: scientific research and development

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company name	GFS Chemicals, Inc.	
Address	P.O. Box 245 Powell OH 43065 US	
Telephone	Phone	740-881-5501
	Toll Free	800-858-9682
	Fax	740-881-5989
Website	www.gfschemicals.com	
E-mail	service@gfschemicals.com	
Emergency phone number	Emergency Assistance	Chemtrec 800-424-9300

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards

Acute toxicity, oral	Category 4
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Sensitization, respiratory	Category 1
Specific target organ toxicity, single exposure	Category 1 (respiratory system)
Specific target organ toxicity, repeated exposure	Category 1 (respiratory system, teeth)

OSHA hazard(s) Not classified.

Label elements

Signal word Danger

Hazard statement Harmful if swallowed. Causes severe skin burns and eye damage. Causes serious eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Causes damage to organs (respiratory system). Causes damage to organs (respiratory system, teeth) through prolonged or repeated exposure. Very toxic to aquatic life.

Precautionary statement

Prevention Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. In case of inadequate ventilation wear respiratory protection.

Response IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Rinse mouth.

Storage Store locked up.

Disposal Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOC)	Not classified.
Environmental hazards	Hazardous to the aquatic environment, acute hazard Category 2

Supplemental information

Precautionary statement

Prevention	Avoid release to the environment.
Response	Collect spillage.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.

3. Composition/information on ingredients

Mixtures

Hazardous components

Chemical name	CAS number	%
HYDROGEN CHLORIDE	7647-01-0	10.9

Non-hazardous components

Chemical name	CAS number	%
WATER	7732-18-5	89.1

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.
Skin contact	Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. For minor skin contact, avoid spreading material on unaffected skin.
Eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Corrosive effects. Irritation of eyes and mucous membranes. May cause temporary blindness and severe eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause allergic respiratory reaction. Prolonged exposure may cause chronic effects.
Indication of immediate medical attention and special treatment needed	In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. Provide general supportive measures and treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Use extinguishing agent suitable for type of surrounding fire. Water. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Irritating, corrosive and/or toxic gases or fumes will be released during a fire.
Special protective equipment and precautions for firefighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.
Fire-fighting equipment/instructions	Water runoff can cause environmental damage.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. Keep upwind. Keep out of low areas. Ensure adequate ventilation. Avoid inhalation of vapors or mists. Wear appropriate personal protective equipment.

Methods and materials for containment and cleaning up

Should not be released into the environment. This product is miscible in water. Prevent entry into waterways, sewers, basements or confined areas.

Large Spills: Stop leak if you can do so without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Neutralize with lime or soda ash. Following product recovery, flush area with water. Clean up in accordance with all applicable regulations.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways.

Never return spills in original containers for re-use. For waste disposal, see section 13 of the MSDS. Neutralize the spilled material before disposal.

Environmental precautions

Contact local authorities in case of spillage to drain/aquatic environment. Avoid discharge into drains, water courses or onto the ground. Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water.

7. Handling and storage

Precautions for safe handling

In case of insufficient ventilation, wear suitable respiratory equipment. Do not breathe mist or vapor. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not taste or swallow. Do not get this material on clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Avoid release to the environment. Do not empty into drains.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep out of the reach of children. Store in a cool, dry place out of direct sunlight.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
HYDROGEN CHLORIDE (CAS 7647-01-0)	Ceiling	7 mg/m3
		5 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
HYDROGEN CHLORIDE (CAS 7647-01-0)	Ceiling	2 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
HYDROGEN CHLORIDE (CAS 7647-01-0)	Ceiling	7 mg/m3
		5 ppm

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear eye/face protection. Chemical goggles are recommended. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin protection

Hand protection

Wear protective gloves.

Other

Wear appropriate chemical resistant clothing. It may provide little or no thermal protection. Wear protective gloves. Provide eyewash station and safety shower.

Respiratory protection	Use a chemical cartridge respirator for concentrations exceeding the Occupational Exposure Limit.
Thermal hazards	Not available.
General hygiene considerations	Provide eyewash station and safety shower. When using, do not eat, drink or smoke. Do not get in eyes. Do not get this material in contact with skin. Do not get this material on clothing. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance	Clear.
Physical state	Liquid.
Form	Aqueous solution.
Color	Colorless.
Odor	Pungent.
Odor threshold	Not available.
pH	1.01 (0.1 N Solution)
Melting point/freezing point	< 32 °F (< 0 °C)
Initial boiling point and boiling range	> 212 °F (> 100 °C)
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	190 torr estimated
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	Completely miscible with water.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	1.05 g/cm3
Molecular formula	HCl
Molecular weight	36.46
Percent volatile	100 %
Specific gravity	1.05

10. Stability and reactivity

Reactivity	Incompatible materials.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Reacts violently with strong alkaline substances. This product may react with reducing agents. Do not mix with other chemicals.
Incompatible materials	Incompatible with bases. Amines. Contact with most metals produces highly flammable hydrogen gas. This product may react with reducing agents.
Hazardous decomposition products	Hydrogen chloride.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Causes digestive tract burns. Harmful if swallowed.
Inhalation	May cause irritation to the respiratory system. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin contact	Causes severe skin burns.
Eye contact	Causes severe eye burns. Causes serious eye damage.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Permanent eye damage including blindness could result.

Information on toxicological effects

Acute toxicity Causes severe skin burns and eye damage. Harmful if swallowed.

Product	Species	Test Results
HYDROCHLORIC ACID, 3 N (CAS Mixture)		
Acute		
Dermal		
LD50	Mouse	3916 mg/kg
Inhalation		
LC50	Mouse	10165.1377 mg/l, 1 Hours, estimated
		2995 mg/l
	Rat	28660.5508 mg/l, 1 Hours, estimated
		3124 mg/l, 1 hour
Oral		
LD50	Rabbit	900 mg/kg
Other		
LD50	Mouse	13293.5781 mg/kg, estimated

Components	Species	Test Results
HYDROGEN CHLORIDE (CAS 7647-01-0)		
Acute		
Dermal		
LD50	Mouse	1449 mg/kg
Inhalation		
LC50	Mouse	1108 mg/l, 1 Hours
	Rat	3124 mg/l, 1 Hours
Oral		
LD50	Rabbit	900 mg/kg
Other		
LD50	Mouse	1449 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Causes severe skin burns and eye damage.
Serious eye damage/eye irritation	Causes severe eye burns. Causes serious eye damage.
Respiratory sensitization	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitization	Irritating to skin.
Germ cell mutagenicity	Due to lack of data the classification is not possible.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

HYDROGEN CHLORIDE (CAS 7647-01-0) 3 Not classifiable as to carcinogenicity to humans.

Reproductive toxicity	Due to lack of data the classification is not possible.
Specific target organ toxicity - single exposure	Causes damage to organs (respiratory system).

Specific target organ toxicity - repeated exposure Causes damage to organs (respiratory system, teeth) through prolonged or repeated exposure.

Aspiration hazard Due to lack of data the classification is not possible.

Chronic effects Prolonged inhalation may be harmful. Causes damage to organs through prolonged or repeated exposure.

12. Ecological information

Ecotoxicity Very toxic to aquatic life. Because of the low pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.

Product		Species	Test Results
HYDROCHLORIC ACID, 3 N (CAS Mixture)			
Crustacea	LC50	Daphnia	676 mg/l, 48 Hours
Fish	LC50	Fish	762 mg/l, 24 Hours
			762 mg/l, 48 Hours
			762 mg/l, 96 Hours

Components		Species	Test Results
HYDROGEN CHLORIDE (CAS 7647-01-0)			
Crustacea	LC50	Green or Europeon shore crab (Carcinus maenas)	240 mg/l, 48 hours
Aquatic			
Crustacea	LC50	Common shrimp, sand shrimp (Crangon crangon)	260 mg/l, 48 hours
Fish	LC50	Western mosquitofish (Gambusia affinis)	282 mg/l, 24 hours
			282 mg/l, 48 hours
			282 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability None known.

Bioaccumulative potential Not available.

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Neutralize with soda ash/slaked lime and discharge to sewer with lots of water. Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Not available.

Hazardous waste code D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number UN1789

UN proper shipping name Hydrochloric acid

Transport hazard class(es) 8

Subsidary class(es) Not available.

Packing group II

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Labels required 8

Special provisions A3, A6, B3, B15, IB2, N41, T8, TP2, TP12

Packaging exceptions 154

Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1789
UN proper shipping name	Hydrochloric acid
Transport hazard class(es)	8
Subsidary class(es)	-
Packaging group	II
Environmental hazards	No
Labels required	Not available.
ERG Code	8L
Special precautions for user	Not available.

IMDG

UN number	UN1789
UN proper shipping name	HYDROCHLORIC ACID
Transport hazard class(es)	8
Subsidary class(es)	•
Packaging group	II
Environmental hazards	
Marine pollutant	No
Labels required	Not available.
EmS	F-A, S-B
Special precautions for user	Not available.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available.
General information	DOT Regulated Marine Pollutant. IMDG Regulated Marine Pollutant.

DOT

IATA

15. Regulatory information

US federal regulations All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not on regulatory list.

CERCLA Hazardous Substance List (40 CFR 302.4)

HYDROGEN CHLORIDE (CAS 7647-01-0) LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance No

SARA 311/312 Hazardous chemical No

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

HYDROGEN CHLORIDE (CAS 7647-01-0)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

HYDROGEN CHLORIDE (CAS 7647-01-0)

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

HYDROGEN CHLORIDE (CAS 7647-01-0) 6545

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

HYDROGEN CHLORIDE (CAS 7647-01-0) 20 %WV

DEA Exempt Chemical Mixtures Code Number

HYDROGEN CHLORIDE (CAS 7647-01-0) 6545

Food and Drug Administration (FDA) Not regulated.

US state regulations California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US. Massachusetts RTK - Substance List

HYDROGEN CHLORIDE (CAS 7647-01-0)

US. New Jersey Worker and Community Right-to-Know Act

HYDROGEN CHLORIDE (CAS 7647-01-0) 500 LBS

US. Pennsylvania RTK - Hazardous Substances

HYDROGEN CHLORIDE (CAS 7647-01-0)

US. Rhode Island RTK

HYDROGEN CHLORIDE (CAS 7647-01-0)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

16. Other information, including date of preparation or last revision

Issue date February-14-2013

Version #	01
Further information	Not available.
Disclaimer	The information in the sheet was written based on the best knowledge and experience currently available. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.