



## SAFETY DATA SHEET

Creation Date 24-Mar-2014

Revision Date 24-Mar-2014

Revision Number 1

### 1. Identification

**Product Name** Hydrochloric Acid Solution, 2N (Certified)

**Cat No. :** SA431-500

**Synonyms** Chlorohydric acid; Hydrogen chloride; Muriatic acid

**Recommended Use** Laboratory chemicals

**Uses advised against** No Information available

#### Details of the supplier of the safety data sheet

##### **Company**

Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

##### **Emergency Telephone Number**

CHEMTREC®, Inside the USA: 800-  
424-9300  
CHEMTREC®, Outside the USA: 001-  
703-527-3887

### 2. Hazard(s) Identification

#### **Classification**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Corrosive to metals	Category 1
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

#### **Label Elements**

##### **Signal Word**

Warning

##### **Hazard Statements**

May be corrosive to metals  
Causes skin irritation  
Causes serious eye irritation  
May cause respiratory irritation

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<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.
<b>Inhalation</b>	Move to fresh air. If breathing is difficult, give oxygen. Get medical attention if symptoms occur..
<b>Ingestion</b>	Do not induce vomiting. Obtain medical attention.
<b>Most important symptoms/effects</b>	May cause skin irritation and/or dermatitis.
<b>Notes to Physician</b>	Treat symptomatically.

## 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	Substance is nonflammable; use agent most appropriate to extinguish surrounding fire..
<b>Unsuitable Extinguishing Media</b>	No information available.
<b>Flash Point</b>	Not applicable
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	No information available.
<b>Explosion Limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	No information available

### Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. In the event of fire and/or explosion do not breathe fumes.

### Hazardous Combustion Products

## 7. Handling and storage

**Handling** Wear personal protective equipment. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation.

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area.

## 8. Exposure controls / personal protection

### Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Hydrochloric acid	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m <sup>3</sup> (Vacated) Ceiling: 5 ppm (Vacated) Ceiling: 7 mg/m <sup>3</sup>	IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 mg/m <sup>3</sup>

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Hydrochloric acid	Ceiling: 5 ppm Ceiling: 7.5 mg/m <sup>3</sup>	Ceiling: 5 ppm Ceiling: 7 mg/m <sup>3</sup>	CEV: 2 ppm

### Legend

**ACGIH** - American Conference of Governmental Hygienists

**NIOSH IDLH**: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

**Engineering Measures** Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

### Personal Protective Equipment

**Eye/face Protection** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure

**Respiratory Protection** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

<b>Physical State</b>	Liquid
<b>Appearance</b>	Clear
<b>Odor</b>	pungent
<b>Odor Threshold</b>	No information available.
<b>pH</b>	0.10 (1N)
<b>Melting Point/Range</b>	-17°C / 1.4°F
<b>Boiling Point/Range</b>	81.5 - 110°C / 178.7230°F @ 760 mmHg
<b>Flash Point</b>	Not applicable
<b>Evaporation Rate</b>	> 1 (Butyl Acetate = 1.0)
<b>Flammability (solid,gas)</b>	No information available
<b>Flammability or explosive limits</b>	
<b>Upper</b>	No data available

## 9. Physical and chemical properties

Lower	No data available
Vapor Pressure	160 mmHg @ 20 °C
Vapor Density	1.26 (Air = 1.0)
Relative Density	1.16 (H <sub>2</sub> O=1)
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available.
Decomposition temperature	No information available.
Viscosity	No information available.
Molecular Formula	HCl
Molecular Weight	36.46

## 10. Stability and reactivity

Reactive Hazard	None known, based on information available.
Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products. Excess heat.
Incompatible Materials	Metals, Oxidizing agents, Reducing agents, Aldehydes
Hazardous Decomposition Products	Hydrogen chloride gas, Thermal decomposition can lead to release of irritating gases and vapors
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

## 11. Toxicological information

### Acute Toxicity

#### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	-	Not listed	Not listed
Hydrochloric acid	700 mg/kg ( Rat )	5010 mg/kg ( Rabbit )	3124 ppm ( Rat ) 1 h

**Toxicologically Synergistic Products** No information available.

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Irritation** Irritating to eyes, respiratory system and skin

**Sensitization** No information available.

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed
Hydrochloric acid	7647-01-0	Group 3	Not listed	Not listed	Not listed	Not listed

IARC: (International Agency for Research on Cancer)

IARC: (International Agency for Research on Cancer)  
Group 1 - Carcinogenic to Humans  
Group 2A - Probably Carcinogenic to Humans  
Group 2B - Possibly Carcinogenic to Humans

<b>Mutagenic Effects</b>	No information available.
<b>Reproductive Effects</b>	No information available.
<b>Developmental Effects</b>	No information available.
<b>Teratogenicity</b>	No information available.
<b>STOT - single exposure</b>	Respiratory system.
<b>STOT - repeated exposure</b>	None known.
<b>Aspiration hazard</b>	No information available.
<b>Symptoms / effects, both acute and delayed</b>	No information available.
<b>Endocrine Disruptor Information</b>	No information available
<b>Other Adverse Effects</b>	The toxicological properties have not been fully investigated.. See actual entry in RTECS for complete information.

## 12. Ecological information

### Ecotoxicity

Do not empty into drains

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Hydrochloric acid	-	282 mg/L LC50 96 h	-	-

<b>Persistence and Degradability</b>	No information available.
<b>Bioaccumulation/ Accumulation</b>	No information available
<b>Mobility</b>	No information available

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification

## 14. Transport information

### DOT

<b>UN-No</b>	UN1789
<b>Proper Shipping Name</b>	HYDROCHLORIC ACID SOLUTION
<b>Hazard Class</b>	8
<b>Packing Group</b>	III

## 14. Transport information

### TDG

UN-No UN1789  
Proper Shipping Name HYDROCHLORIC ACID SOLUTION  
Hazard Class 8  
Packing Group III

### IATA

UN-No UN1789  
Proper Shipping Name HYDROCHLORIC ACID SOLUTION  
Hazard Class 8  
Packing Group III

### IMDG/IMO

UN-No UN1789  
Proper Shipping Name HYDROCHLORIC ACID SOLUTION  
Hazard Class 8  
Packing Group III

## 15. Regulatory information

### International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Water	X	X	-	231-791-2	-		X	-	X	X	X
Hydrochloric acid	X	X	-	231-595-7	-		X	X	X	X	X

### Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

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<b>Fire Hazard</b>	No
<b>Sudden Release of Pressure Hazard</b>	No
<b>Reactive Hazard</b>	No

**Clean Water Act**

<b>Component</b>	<b>CWA - Hazardous</b>
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