

## SAFETY DATA SHEET

Preparation Date: 1/22/2018

Revision Date: 1/22/2018

Revision Number: G1

### 1. IDENTIFICATION

#### Product identifier

**Product code:** AA185  
**Product Name:** GOLD ATOMIC ABSORPTION STANDARD

#### Other means of identification

**Synonyms:** Gold Splatter in 10% Hydrochloric Acid Solution  
**CAS #:** Mixture  
**RTECS #** Not available  
**CI#:** Not available

#### Recommended use of the chemical and restrictions on use

**Recommended use:** No information available.  
**Uses advised against** No information available

**Supplier:** Spectrum Chemical Mfg. Corp  
 14422 South San Pedro St.  
 Gardena, CA 90248  
 (310) 516-8000

**Order Online At:** <https://www.spectrumchemical.com>  
**Emergency telephone number** Chemtrec 1-800-424-9300  
**Contact Person:** Martin LaBenz (West Coast)  
**Contact Person:** Ibad Tirmiz (East Coast)

### 2. HAZARDS IDENTIFICATION

#### Classification

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

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Acute toxicity - Inhalation (Gases)	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3
Corrosive to metals	Category 1

#### Label elements

##### **Danger**

##### **Hazard statements**

Harmful if inhaled  
 Causes severe skin burns and eye damage  
 May cause respiratory irritation  
 May be corrosive to metals

**Product code:** AA185

**Product name:** GOLD ATOMIC  
 ABSORPTION STANDARD

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**Hazards not otherwise classified (HNOC)**

Not Applicable

**Other hazards**

May be harmful if swallowed

**Precautionary Statements - Prevention**

Use only outdoors or in a well-ventilated area  
Do not breathe dust/fume/gas/mist/vapors/spray  
Wash face, hands and any exposed skin thoroughly after handling  
Wear protective gloves/protective clothing/eye protection/face protection  
Keep only in original container

**Precautionary Statements - Response**

*Immediately call a POISON CENTER or doctor/physician*  
Absorb spillage to prevent material damage  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.  
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
Wash contaminated clothing before reuse  
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. Immediately call a POISON CENTER or doctor/physician.  
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

**Precautionary Statements - Storage**

Store locked up  
Store in a well-ventilated place. Keep container tightly closed  
Store in corrosive resistant/ .? container with a resistant inner liner

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Components	CAS-No.	Weight %
Water	7732-18-5	96.2
Hydrogen chloride	7647-01-0	3.7-3.8
Gold Metal, powder	7440-57-5	0.1

**4. FIRST AID MEASURES**

**First aid measures**

**General Advice:** National Capital Poison Center in the United States can provide assistance if you

have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. First aider needs to protect himself.

**Skin Contact:** Wash off immediately with soap and plenty of water. Continue flushing with plenty of water for at least 15 minutes. Remove all contaminated clothes and shoes. Immediate medical attention is required. Call a physician or Poison Control Centre immediately. Call a physician immediately.

**Eye Contact:** Flush eyes with water for 15 minutes. Immediate medical attention is required. Call a physician immediately.

**Inhalation:** Move to fresh air. **WARNING!** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or 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. If breathing is difficult, give oxygen. Immediate medical attention is required. If not breathing, give artificial respiration. Call a physician immediately.

**Ingestion:** Do not give Sodium Bicarbonate (Baking Soda). Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Immediate medical attention is required. Call a physician or Poison Control Center immediately. If victim is conscious, give water or milk.

**Most important symptoms and effects, both acute and delayed**

**Symptoms**

- Severe skin and eye irritation or burns
- Irritating to respiratory system
- Burning sensation of the respiratory tract
- Coughing
- Hoarseness of the voice
- Choking sensation
- Dyspnea (Shortness of breath and difficulty breathing)
- Shallow respiration
- Can burn mouth, throat, and stomach
- May cause salivation
- Thirst
- May cause difficulty swallowing
- May cause abdominal pain, nausea, vomiting, diarrhea
- Weak, rapid pulse or rapid heart rate (Tachycardia)
- May cause inflammation of the lungs (pneumonitis)
- May cause chemical burns to the respiratory tract

**Indication of any immediate medical attention and special treatment needed**

**Notes to Physician:** Treat symptomatically.

**Protection of first-aiders**

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

**5. FIRE-FIGHTING MEASURES**

**Extinguishing Media**

**Suitable Extinguishing Media:** The product is not flammable. If it is involved in a fire, extinguish the fire using an agent suitable for the type of surrounding fire.

**Unsuitable Extinguishing Media:** No information available.

## Specific hazards arising from the chemical

### Hazardous Combustion Products:

No information available.

### Specific hazards:

Contact with metals may evolve flammable hydrogen gas  
Calcium carbide reacts with hydrogen chloride gas with incandescence  
Uranium phosphide reacts with hydrochloric acid to release spontaneously flammable phosphine  
Rubidium acetylene carbide burns with slightly warm Hydrochloric acid  
Lithium silicide in contact with hydrogen chloride becomes incandescent. When dilute hydrochloric acid is used, gas that is spontaneously flammable in air is evolved  
Magnesium boride treated with concentrated hydrochloric acid produces spontaneously flammable gas  
Cesium acetylene carbide burns in hydrogen chloride gas  
Cesium carbide ignites in contact with Hydrochloric acid unless acid is dilute  
Hydrogen chloride in contact with the following can cause an explosion, ignition on contact, or other violent/vigorous reaction: Acetic anhydride  $\text{AgClO} + \text{CCl}_4$  Alcohols + hydrogen cyanide, Aluminum Aluminum-titanium alloys (with HCl vapor), 2-Amino ethanol, Ammonium hydroxide, Calcium carbide  $\text{Ca}_3\text{P}_2$  Chlorine + dinitroanilines (evolves gas), Chlorosulfonic acid Cesium carbide Cesium acetylene carbide, 1,1-Difluoroethylene Ethylene diamine Ethylene imine, Fluorine,  $\text{HClO}_4$  Hexalithium disilicide  $\text{H}_2\text{SO}_4$  Metal acetylides or carbides, Magnesium boride, Mercuric sulfate, Oleum, Potassium permanganate, beta-Propiolactone Propylene oxide Rubidium carbide, Rubidium, acetylene carbide Sodium (with aqueous HCl), Sodium hydroxide Sodium tetraselenium, Sulfonic acid, Tetraselenium tetranitride,  $\text{U}_3\text{P}_4$ , Vinyl acetate.  
Silver perchlorate with carbon tetrachloride in the presence of hydrochloric acid produces trichloromethyl perchlorate which detonates at 40 deg. C [Hydrochloric acid].  
For Hydrogen chloride/concentrated Hydrochloric acid:  
Contact with metals may evolve flammable hydrogen gas.  
Calcium carbide reacts with hydrogen chloride gas with incandescence. Uranium phosphide reacts with hydrochloric acid to release spontaneously flammable phosphine. Rubidium acetylene carbide burns with slightly warm Hydrochloric acid. Lithium silicide in contact with hydrogen chloride becomes incandescent. When dilute hydrochloric acid is used, gas that is spontaneously flammable in air is evolved. Magnesium boride treated with concentrated hydrochloric acid produces spontaneously flammable gas. Cesium acetylene carbide burns in hydrogen chloride gas. Cesium carbide ignites in contact with Hydrochloric acid unless acid is dilute. Hydrogen chloride in contact with the following can cause an explosion, ignition on contact, or other violent/vigorous reaction: Acetic anhydride  $\text{AgClO} + \text{CCl}_4$  Alcohols + hydrogen cyanide, Aluminum Aluminum-titanium alloys (with HCl vapor), 2-Amino ethanol, Ammonium hydroxide, Calcium carbide  $\text{Ca}_3\text{P}_2$  Chlorine + dinitroanilines (evolves

gas), Chlorosulfonic acid Cesium carbide Cesium acetylene carbide, 1,1-Difluoroethylene Ethylene diamine Ethylene imine, Fluorine, HClO<sub>4</sub> Hexalithium disilicide H<sub>2</sub>SO<sub>4</sub> Metal acetylides or carbides, Magnesium boride, Mercuric sulfate, Oleum, Potassium permanganate, beta-Propiolactone Propylene oxide Rubidium carbide, Rubidium, acetylene carbide Sodium (with aqueous HCl), Sodium hydroxide Sodium tetraselenium, Sulfonic acid, Tetraselenium tetranitride, U<sub>3</sub>P<sub>4</sub>, Vinyl acetate. Silver perchlorate with carbon tetrachloride in the presence of hydrochloric acid produces trichloromethyl perchlorate which detonates at 40 deg. C.

### **Special Protective Actions for Firefighters**

**Specific Methods:**

No information available.

**Special Protective Equipment for Firefighters:**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

## **6. ACCIDENTAL RELEASE MEASURES**

### **Personal precautions, protective equipment and emergency procedures**

**Personal Precautions:**

Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use personal protective equipment.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not let product enter drains. Do not flush into surface water or sanitary sewer system. Prevent entry into waterways, sewers, basements or confined areas.

### **Methods and material for containment and cleaning up**

**Methods for containment**

Stop leak if you can do it without risk.

**Methods for cleaning up**

Neutralize with Sodium carbonate or Sodium bicarbonate. Dilute with water. Absorb spill with inert material (e.g. vermiculite, dry sand or earth), then place in a suitable chemical waste container. Clean contaminated surface thoroughly.

## **7. HANDLING AND STORAGE**

### **Precautions for safe handling**

**Technical Measures/Precautions:**

Provide sufficient air exchange and/or exhaust in work rooms. Keep away from incompatible materials. Use only in area provided with appropriate exhaust ventilation.

**Safe Handling Advice**

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Use only in well-ventilated areas. Do not breathe vapors or spray mist. Do not ingest. Handle in accordance with good industrial hygiene and safety practice.

### **Conditions for safe storage, including any incompatibilities**

**Technical Measures/Storage Conditions:**

Keep container tightly closed in a dry and well-ventilated place. May corrode metallic surfaces. Do not store in uncoated metallic containers. Store at room temperature in the original container. Store away from incompatible materials. Store in a segregated and approved area.

**Incompatible Materials:**

- Oxidizing agents
- Metals
- Alkalis
- Organic materials

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Control parameters**

**National occupational exposure limits**

**United States**

Components	CAS-No.	OSHA	NIOSH	ACGIH	AIHA WEEL
Water	7732-18-5	None	None	None	None
Hydrogen chloride	7647-01-0	5 ppm Ceiling 7 mg/m <sup>3</sup> Ceiling	5 ppm Ceiling 7 mg/m <sup>3</sup> Ceiling	2 ppm Ceiling	None
Gold Metal, powder	7440-57-5	None	None	None	None

**Canada**

Components	CAS-No.	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
Water	7732-18-5	None	None	None	None
Hydrogen chloride	7647-01-0	2 ppm Ceiling 3 mg/m <sup>3</sup> Ceiling	2 ppm Ceiling	2 ppm Ceiling	5 ppm Ceiling 7.5 mg/m <sup>3</sup> Ceiling
Gold Metal, powder	7440-57-5	None	None	None	None

**Australia and Mexico**

Components	CAS-No.	Australia	Mexico
Water	7732-18-5	None	None
Hydrogen chloride	7647-01-0	None	5 ppm Ceiling 7 mg/m <sup>3</sup> Ceiling
Gold Metal, powder	7440-57-5	None	None

**Appropriate engineering controls**

**Engineering measures to reduce exposure:**

Ensure adequate ventilation, especially in confined areas. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

**Individual protection measures, such as personal protective equipment**

**Personal Protective Equipment**

**Eye protection:** Face-shield

**Skin and body protection:** Chemical resistant apron  
Long sleeved clothing  
Gloves  
If working with large quantities:  
Chemical resistant protective suit  
Boots

**Respiratory protection:** Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Respiratory protection is not necessary for normal handling. Good room ventilation or use of local exhaust (fume hood) is sufficient. Use a vapor respirator under conditions where exposure to the substance is apparent (e.g. generation of high concentrations of mist or vapor, inadequate ventilation, development of respiratory tract irritation), and engineering controls are not feasible. Be sure to use an approved/certified respirator or equivalent.

**Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wear suitable gloves and eye/face protection. Wash hands before breaks and immediately after handling the product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state:</b> Liquid	<b>Appearance:</b> Clear.	<b>Color:</b> Yellow.
<b>Odor:</b> No information available.	<b>Taste</b> No information available.	<b>Formula:</b> No information available
<b>Molecular/Formula weight:</b> No information available	<b>Flammability:</b> No information available	<b>Flashpoint (°C/°F):</b> No information available.
<b>Flash Point Tested according to:</b> Not available	<b>Autoignition Temperature (°C/°F):</b> No information available	<b>Lower Explosion Limit (%):</b> No information available
<b>Upper Explosion Limit (%):</b> No information available	<b>Melting point/range(°C/°F):</b> No information available	<b>Decomposition temperature(°C/°F):</b> No information available
<b>Boiling point/range(°C/°F):</b> 100°C/212°F (water)	<b>Bulk density:</b> No information available	<b>Density (g/cm<sup>3</sup>):</b> No information available
<b>Specific gravity:</b> 1.01	<b>pH:</b> No information available	<b>Vapor pressure @ 20°C (kPa):</b> No information available
<b>Evaporation rate:</b> No information available	<b>Vapor density:</b> No information available	<b>VOC content (g/L):</b> No information available
<b>Odor threshold (ppm):</b> No information available	<b>Partition coefficient (n-octanol/water):</b> No information available	<b>Viscosity:</b> No information available
<b>Miscibility:</b> No information available	<b>Solubility:</b> Very soluble in water	

## 10. STABILITY AND REACTIVITY

### Reactivity

For Hydrogen chloride or concentrated Hydrochloric Acid:  
Reacts with most metals to produce flammable Hydrogen gas.  
Sodium reacts very violently with gaseous hydrogen chloride.  
Calcium phosphide and Hydrochloric acid undergo a very energetic reaction.  
Hydrogen chloride reacts with oxidizers releasing chlorine gas.

Hydrogen chloride gas is emitted when Hydrochloric acid comes in contact with Sulfuric acid.  
 Adsorption of Hydrochloric acid onto Silicon dioxide results in exothermic reaction.  
 Hydrogen chloride causes aldehydes and epoxides to violently polymerize.  
 Reacts violently with bases, oxidizers forming toxic chlorine gas.  
 Reacts, often violently or vigorously or exothermically, with acetic anhydride, active metals, aliphatic amines, alkanolamines, alkylene oxides, aromatic amines, amides, 2-aminoethanol, ammonia, ammonium hydroxide, calcium phosphide, chlorosulfonic acid, ethylene diamine, ethyleneimine, epichlorohydrin, isocyanates, metal acetylides, oleum, organic anhydrides, perchloric acid, 3-propiolactone, uranium phosphide, sulfuric acid, vinyl acetate, vinylidene fluoride, alcohols + hydrogen cyanide, Aluminum phosphide, Aluminum-titanium alloys, 2-Amino ethanol, Ammonium hydroxide, Ammonium, 1,4-Benzoquinone diimine, Cesium telluroacylated, Chlorine + dinitroanilines, Chloroacetaldehyde oxime, Cyanogen chloride, 1,1-Difluoroethylene, dinitroanilines, Ethylene, Ethyl 2-formylpropionate oxime, Hexalithium disilicide, Hydrogen peroxide, Methyl vinyl ether, Nitric acid + glycerol, Potassium, Potassium permanganate, beta-Propiolactone, Propylene oxide, Rubidium acetylide, Silver chlorite, Sodium 2-allyloxy-6-nitrophenylpyruvate oxime, Sodium hydroxide, Sodium teranitride, 2,4,6-Tri(2-acetylhydrazino)-1,3,5-trinitrobenzene, Sulfonic acid, Cesium cyanotridecahydrodecaborate(2-), Potassium ferricyanide, Vinylidene fluoride, Potassium ferrocyanide, Ammonium hexacyanoferrate (II).  
 Reaction with oxidizers such as permanganates, chlorates, chlorites, and hypochlorites may produce chlorine or bromine gas.  
 Reacts vigorously with alkalis and with many organic materials.  
 Cesium acetylene carbide burns in hydrogen chloride gas.  
 Lithium silicide in contact with hydrogen chloride becomes incandescent.  
 Magnesium boride in contact with concentrated hydrochloric acid produces spontaneously flammable gas.  
 Rubidium acetylene carbide burns with slightly warm hydrochloric acid.  
 Rubidium carbide ignites in contact with hydrochloric acid unless acid is dilute.  
 Uranium phosphide reacts with hydrochloric acid to release spontaneously flammable phosphine.  
 Calcium carbide reacts with hydrogen chloride gas with incandescence.  
 Absorption of gaseous hydrogen chloride on mercuric sulfate becomes violent @ 125 deg C.  
 Reaction of silver perchlorate with carbon tetrachloride in presence of small amount of hydrochloric acid produces trichloromethyl perchlorate, which detonates @ 40 deg C.  
 Cesium carbide ignites in contact with hydrochloric acid unless acid is dilute.  
 Hydrochloric acid in the presence of alcohol and glycols results in dehydration reactions.  
 Hydrogen chloride gas can react with formaldehyde to form bis(chloromethyl)ether, a human carcinogen.  
 Exothermic reaction with water  
 Attacks some plastics, rubber, and coatings.  
 Reacts with most metals to produce flammable Hydrogen gas.  
 Sodium reacts very violently with gaseous hydrogen chloride.  
 Calcium phosphide and Hydrochloric acid undergo a very energetic reaction.  
 Hydrogen chloride reacts with oxidizers releasing chlorine gas.  
 Hydrogen chloride gas is emitted when Hydrochloric acid comes in contact with Sulfuric acid.  
 Adsorption of Hydrochloric acid onto Silicon dioxide results in exothermic reaction.  
 Hydrogen chloride causes aldehydes and epoxides to violently polymerize.  
 Reacts violently with bases, oxidizers forming toxic chlorine gas.  
 Reacts, often violently or vigorously or exothermically, with acetic anhydride, active metals, aliphatic amines, alkanolamines, alkylene oxides, aromatic amines, amides, 2-aminoethanol, ammonia, ammonium hydroxide, calcium phosphide, chlorosulfonic acid, ethylene diamine, ethyleneimine, epichlorohydrin, isocyanates, metal acetylides, oleum, organic anhydrides, perchloric acid, 3-propiolactone, uranium phosphide, sulfuric acid, vinyl acetate, vinylidene fluoride, alcohols + hydrogen cyanide, Aluminum phosphide, Aluminum-titanium alloys, 2-Amino ethanol, Ammonium hydroxide, Ammonium, 1,4-Benzoquinone diimine, Cesium telluroacylated, Chlorine + dinitroanilines, Chloroacetaldehyde oxime, Cyanogen chloride, 1,1-Difluoroethylene, dinitroanilines, Ethylene, Ethyl 2-formylpropionate oxime, Hexalithium disilicide, Hydrogen peroxide, Methyl vinyl ether, Nitric acid + glycerol, Potassium, Potassium permanganate, beta-Propiolactone, Propylene oxide, Rubidium acetylide, Silver chlorite, Sodium 2-allyloxy-6-nitrophenylpyruvate oxime, Sodium hydroxide, Sodium teranitride, 2,4,6-Tri(2-acetylhydrazino)-1,3,5-trinitrobenzene, Sulfonic acid, Cesium cyanotridecahydrodecaborate(2-), Potassium ferricyanide, Vinylidene fluoride, Potassium ferrocyanide, Ammonium hexacyanoferrate (II).  
 Reaction with oxidizers such as permanganates, chlorates, chlorites, and hypochlorites may produce chlorine or bromine gas.  
 Reacts vigorously with alkalis and with many organic materials.  
 Cesium acetylene carbide burns in hydrogen chloride gas.  
 Lithium silicide in contact with hydrogen chloride becomes incandescent.  
 Magnesium boride in contact with concentrated hydrochloric acid produces spontaneously flammable gas.  
 Rubidium acetylene carbide burns with slightly warm hydrochloric acid.  
 Rubidium carbide ignites in contact with hydrochloric acid unless acid is dilute.  
 Uranium phosphide reacts with hydrochloric acid to release spontaneously flammable phosphine.  
 Calcium carbide reacts with hydrogen chloride gas with incandescence.  
 Absorption of gaseous hydrogen chloride on mercuric sulfate becomes violent @ 125 deg C.  
 Reaction of silver perchlorate with carbon tetrachloride in presence of small amount of hydrochloric acid produces trichloromethyl perchlorate, which detonates @ 40 deg C.  
 Cesium carbide ignites in contact with hydrochloric acid unless acid is dilute.

Hydrochloric acid in the presence of alcohol and glycols results in dehydration reactions.  
Hydrogen chloride gas can react with formaldehyde to form bis(chloromethyl)ether, a human carcinogen.  
Exothermic reaction with water  
Attacks some plastics, rubber, and coatings.

### Chemical stability

**Stability:** Stable under recommended storage conditions.

**Possibility of Hazardous Reactions:** Hazardous polymerization does not occur

**Conditions to avoid:** Heat. Incompatible materials.

**Incompatible Materials:** Oxidizing agents  
Metals  
Alkalis  
Organic materials

**Hazardous decomposition products:** Hydrogen chloride. Hydrogen, by reaction with metals.

### Other Information

**Corrosivity:** No information available

**Special Remarks on Corrosivity:** No information available

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

**Principal Routes of Exposure:**  
Inhalation. Ingestion. Eyes. Skin.

### Acute Toxicity

#### Component Information

Water	
CAS-No.	7732-18-5

**LD50/oral/rat** = > 90 mL/kg Oral LD50 Rat  
**LD50/oral/mouse** = No information available  
**LD50/dermal/rabbit** = No information available  
**LD50/dermal/rat** = No information available  
**LC50/inhalation/rat** = No information available  
**LC50/inhalation/mouse** = No information available  
**Other LD50 or LC50 information** = No information available

Hydrogen chloride	
CAS-No.	7647-01-0

**LD50/oral/rat** = 238 - 277 mg/kg Oral LD50 Rat  
700 mg/kg Oral LD50 Rat (test substance: 31.5% hydrochloric acid solution)  
**LD50/oral/mouse** = No information available  
**LD50/dermal/rabbit** = >5010 mg/kg (Test substance: 31.5% hydrochloric acid solution - from European Chemicals Bureau IUCLID dataset)  
**LD50/dermal/rat** = No information available  
**LC50/inhalation/rat** = 3124 ppm Inhalation LC50 Rat 1 h  
1562 ppm 4 h

1.68 mg/L Inhalation LC50 Rat 1h

**LC50/inhalation/mouse** = 1108 ppm 1 h

**Other LD50 or LC50information** = 900 mg/kg oral LD50 Rabbit (no information on test substance)

Gold Metal, powder	
CAS-No.	7440-57-5

**LD50/oral/rat** = No information available

**LD50/oral/mouse** = No information available

**LD50/dermal/rabbit** = No information available

**LD50/dermal/rat** = No information available

**LC50/inhalation/rat** = No information available

**LC50/inhalation/mouse** = No information available

**Other LD50 or LC50information** = No information available

## Product Information

**LD50/oral/rat** =

**VALUE- Acute Tox Oral** = No information available

**LD50/oral/mouse** =

**Value - Acute Tox Oral** = No information available

**LD50/dermal/rabbit**

**VALUE-Acute Tox Dermal** = No information available

**LD50/dermal/rat**

**VALUE -Acute Tox Dermal** = No information available

**LC50/inhalation/rat**

**VALUE-Vapor** = No information available

**VALUE-Gas** = No information available

**VALUE-Dust/Mist** = No information available

**LC50/Inhalation/mouse**

**VALUE-Vapor** = No information available

**VALUE - Gas** = No information available

**VALUE - Dust/Mist** = No information available

## Symptoms

**Skin Contact:** Corrosive. Causes skin burns.

**Eye Contact:** Corrosive to the eyes and may cause severe damage including blindness. Causes eye burns.

**Inhalation** Harmful by inhalation. Material may be destructive to tissue of the mucous membranes and upper respiratory tract. Inhalation of hydrochloric acid fumes produces nose, throat, and laryngeal burning, and irritation, pain and inflammation, coughing, sneezing, choking sensation, hoarseness, laryngeal spasms, upper respiratory tract edema, chest pains, as well as headache, and palpitations. Inhalation of high concentrations can result in corrosive burns, necrosis of bronchial epithelium, constriction of the larynx and bronchi, nasospetal perforation, glottal closure, dyspnea, bronchitis. Chemical pneumonitis and pulmonary edema can also occur, particularly if exposure is prolonged. May affect the liver.

**Ingestion** May be harmful if swallowed. Causes irritation and burning, ulceration, or perforation of the gastrointestinal tract and resultant peritonitis, gastric hemorrhage and infection. Can also cause nausea, vomiting (with "coffee ground" emesis), diarrhea, thirst, difficulty swallowing, salivation, chills, fever,

uneasiness, shock, strictures and stenosis (esophageal, gastric, pyloric). May affect behavior (excitement), the cardiovascular system (weak rapid pulse, tachycardia), respiration (shallow respiration), and urinary system (kidneys- renal failure, nephritis). Acute ingestion can also cause erosion of tooth enamel.

**Aspiration hazard** No information available.

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

**Chronic Toxicity** Prolonged or repeated inhalation and/or ingestion may affect liver, and cause bleeding of nose and gums, nasal and oral mucosal ulceration, conjunctivitis. It may also affect respiratory tract (changes in pulmonary function, chronic bronchitis, overt respiratory tract abnormalities), teeth (yellowing of teeth and erosion of tooth enamel), kidneys, and behavior/central nervous system (muscle contraction or spasticity). Prolonged or repeated skin contact may cause dermatitis. Prolonged or repeated eye contact with vapor/mist can cause conjunctivitis.

**Sensitization:** No information available.

**Mutagenic Effects:** For Hydrogen Chloride/Hydrochloric Acid:  
Animal experiments showed mutagenic effects  
Cytogenetic Analysis - chromosome aberration test (Chinese Hamster ovary):  
Genotoxic effects were observed

**Carcinogenic effects:** Not considered carcinogenic.

Components	CAS-No.	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed
Hydrogen chloride	7647-01-0	Group 3 - Not classifiable - Monograph 54 [1992]	A4 Not Classifiable as a Human Carcinogen	Not listed	Not listed	Not listed	Not listed
Gold Metal, powder	7440-57-5	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

*ACGIH (American Conference of Governmental Industrial Hygienists)*

*IARC (International Agency for Research on Cancer)*

*NTP (National Toxicology Program)*

*OSHA (Occupational Safety and Health Administration of the US Department of Labor)*

**Reproductive toxicity** No data is available

**Reproductive Effects:** No information available  
**Developmental Effects:** For Hydrogen Chloride/Hydrochloric Acid  
No information on developmental toxicity effects on humans was found  
An increase in postnatal mortality was seen in experiments where rats were exposed to Hydrogen Chloride for 1 hour

**Teratogenic Effects:** No information available

**Specific Target Organ Toxicity**

**STOT - single exposure** Respiratory system.  
**STOT - repeated exposure** No information available.  
**Target Organs:** Respiratory system. Skin. Eyes.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

**Ecotoxicity effects:** Aquatic environment.

*Hydrogen chloride - 7647-01-0*

**Freshwater Fish Species Data:** 282 mg/L LC50 Gambusia affinis 96 h  
862 mg/L LC50 Leuciscus idus

**Water Flea Data:** <56 mg/L LC50 Daphnia magna 72h

**Persistence and degradability:** No information available

**Bioaccumulative potential:** No information available.

**Mobility:** No information available.

## 13. DISPOSAL CONSIDERATIONS

### Disposal Methods

**Waste from residues / unused products:**  
Waste must be disposed of in accordance with Federal, State and Local regulation.

**Contaminated packaging:**  
Empty containers should be taken for local recycling, recovery or waste disposal. Do not re-use empty containers  
Dispose of as unused product.

Components	CAS-No.	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Water	7732-18-5	None	None	None	None
Hydrogen chloride	7647-01-0	None	None	None	None
Gold Metal, powder	7440-57-5	None	None	None	None

## 14. TRANSPORT INFORMATION

### DOT

**UN-No:** UN1789  
**Proper Shipping Name:** Hydrochloric acid solution  
**Hazard Class:** 8  
**Subsidiary Class:** No information available  
**Packing group:** II  
**Emergency Response Guide Number:** 157  
**Marine Pollutant:** No data available  
**DOT RQ (lbs):** No information available  
**Special Provisions:** A3, A6, B3, B15, IB2, N41, T8, TP2  
**Symbol(s):** [DOT]: (R5) - Identifies a material that is a hazardous substance that has a reportable quantity (RQ) of 5000 pounds (2270 Kilograms).  
**Description:** UN1789,Hydrochloric acid ,8,PG II UN1789, Hydrochloric acid, 8, II

### TDG (Canada)

**UN-No:** UN1789  
**Proper Shipping Name:** Hydrochloric acid solution  
**Hazard Class:** 8  
**Subsidiary Risk:** No information available

**Packing Group:** II  
**Marine Pollutant Description:** No Information available  
 UN1789, HYDROCHLORIC ACID, 8, PG II UN1789, Hydrochloric acid, 8, II

**ADR**

**UN-No:** UN1789  
**Proper Shipping Name:** Hydrochloric acid solution  
**Hazard Class:** 8  
**Packing Group:** II  
**Subsidiary Risk:** No information available  
**Special Provisions Description:** 520  
 UN1789 Hydrochloric acid, 8, II UN1789, Hydrochloric acid, 8, II

**IMO / IMDG**

**UN-No:** UN1789  
**Proper Shipping Name:** Hydrochloric acid solution  
**Hazard Class:** 8  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**Marine Pollutant Description:** No information available  
**EMS:** F-A  
**Description:** UN1789, Hydrochloric acid, 8, II

**RID**

**UN-No:** UN1789  
**Proper Shipping Name:** Hydrochloric acid solution  
**Hazard Class:** 8  
**Subsidiary Risk:** 8  
**Packing Group:** II  
**Special Provisions Description:** 520  
 UN1789 Hydrochloric acid, 8, II UN1789, Hydrochloric acid, 8, II

**ICAO**

**UN-No:** UN1789  
**Proper Shipping Name:** Hydrochloric acid solution  
**Hazard Class:** 8  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**Description:** UN1789, Hydrochloric acid, 8, PG II UN1789, Hydrochloric acid, 8, II  
**Special Provisions:** A3

**IATA**

**UN-No:** UN1789  
**Proper Shipping Name:** Hydrochloric acid solution  
**Hazard Class:** 8  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**ERG Code:** 8L  
**Special Provisions Description:** No information available  
 UN1789, Hydrochloric acid, 8, PG II UN1789, Hydrochloric acid, 8, II

**15. REGULATORY INFORMATION**

**International Inventories**

Components	CAS-No.	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
Water	7732-18-5	Present	Present	Present	Not present	Present	Present	Present

			KE-35400					231-791-2
Hydrogen chloride	7647-01-0	Present	ACTIV E Present KE-20189	Present	Present (1)-215	Present	Present	Present 231-595-7
Gold Metal, powder	7440-57-5	Present	Present KE-18083	Present	Not present	Present	Present	Present 231-165-9

## U.S. Regulations

### Hydrogen chloride

**Massachusetts RTK:** Present

**Massachusetts EHS:** extraordinarily hazardous

**New Jersey RTK Hazardous Substance List:** 1012

**New Jersey (EHS) List:** 1012 500 lb TPQ

2909 500 lb TPQ

**New Jersey - Discharge Prevention - List of Hazardous Substances:** Present

**New Jersey TCPA - EHS:** 15000lbTQ

5000lbTQ

5600lbTQ

2000lbTQ

**Pennsylvania RTK:** Environmental hazard

**Pennsylvania RTK - Environmental Hazard List** Present

**Michigan PSM HHC:** = 5000 lb TQ

**Minnesota - Hazardous Substance List:** Present

**New York Release Reporting - List of Hazardous Substances:**

5000 lb RQ

100 lb RQ

**Louisiana Reportable Quantity List for Pollutants:** 5000lbfinal RQAs listed in 40 CFR 117.3 Table 117.3 and 40 CFR 302.4 Table 302.4

2270kgfinal RQAs listed in 40 CFR 117.3 Table 117.3 and 40 CFR 302.4 Table 302.4

5000lbRQAs listed in Louisiana Administrative Code, Title 33, Part 1, Subpart 2, Chapter 39, Subchapter E. Applies to unauthorized emissions based on total mass emitted into or onto all media within any consecutive 24-hour period

1000lbRQAs listed in Louisiana Administrative Code, Title 33, Part 1, Subpart 2, Chapter 39, Subchapter E. Applies to unauthorized emissions based on total mass emitted into the atmosphere

**California Directors List of Hazardous Substances:** Present

**FDA - Food Additives Generally Recognized as Safe (GRAS):** 21 CFR 182.1057

**FDA - 21 CFR - Total Food Additives** 133.129, 155.191, 155.194, 160.105, 160.185, 172.560, 172.892, 182.1057

### California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

#### Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

#### Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	CAS-No.	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Water	7732-18-5	Not Listed	Not Listed	Not Listed	Not Listed
Hydrogen chloride	7647-01-0	Not Listed	Not Listed	Not Listed	Not Listed
Gold Metal, powder	7440-57-5	Not Listed	Not Listed	Not Listed	Not Listed

### CERCLA/SARA

Components	CAS-No.	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis
Water	7732-18-5	None	None	None	None	None
Hydrogen chloride	7647-01-0	5000 lb final RQ 2270 kg final RQ	5000 lb EPCRA RQ	None	None	1.0 % de minimis concentration
Gold Metal, powder	7440-57-5	None	None	None	None	None

### U.S. TSCA

Components	CAS-No.	TSCA Section 5(a)2 - Chemicals	TSCA 8(d) -Health and Safety
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		With Significant New Use Rules (SNURS)	Reporting
Water	7732-18-5	Not Applicable	Not Applicable
Hydrogen chloride	7647-01-0	Not Applicable	Not Applicable
Gold Metal, powder	7440-57-5	Not Applicable	Not Applicable

## Canada

### WHMIS 2015 - GHS Classifications

WHMIS 2015 Hazard Classification Information:

Component

Water

7732-18-5 ( 96.2 )

Hydrogen chloride

7647-01-0 ( 3.7-3.8 )

WHMIS 2015 Hazard Classification

Not a dangerous product according to HPR classification criteria

Hydrogen Chloride: Gases under pressure - Liquefied gas: H280 Contains gas under pressure, may explode when heated.; Corrosive to Metals - Category 1: H290 May be corrosive to metals. (potentially corrosive to metals; the supplier should be contacted for more information); Acute toxicity - Inhalation - Category 3: H331 Toxic if inhaled.; Health Hazard Not Otherwise Classified - Category 1: Causes severe damage to the respiratory tract; Skin corrosion/irritation - Category 1: H314 Causes severe skin burns and eye damage.; Serious Eye Damage/Eye Irritation - Category 1: H318 Causes serious eye damage.

Hydrochloric Acid: Corrosive to Metals - Category 1: H290 May be corrosive to metals. (potentially corrosive to metals; the supplier should be contacted for more information); Acute toxicity - Oral - Category 4: H302 Harmful if swallowed. (3.6% in aqueous solution); Acute toxicity - Inhalation - Category 2: H330 Fatal if inhaled.; Health Hazard Not Otherwise Classified - Category 1: Causes severe damage to the respiratory tract; Skin corrosion/irritation - Category 1: H314 Causes severe skin burns and eye damage.; Skin corrosion/irritation - Category 2: H315 Causes skin irritation. (3.6% in aqueous solution); Serious Eye Damage/Eye Irritation - Category 1: H318 Causes serious eye damage.; Serious Eye Damage/Eye Irritation - Category 2: H319 Causes serious eye irritation. (3.6% in aqueous solution)

**Canada Hazardous Products Regulation** This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

### WHMIS 1988 Hazard Class

E Corrosive material

### Components

Water

Hydrogen chloride

WHMIS 1988

Uncontrolled product according to WHMIS classification criteria

A,D1A,E

D1A,E

E 0.036% in aqueous solution, 0.36% in aqueous solution, 3.6% in aqueous solution

D1B,E 28% in aqueous solution

D1A,E 31.45% in aqueous solution, 35.2% in aqueous solution

### Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Components	WHMIS Ingredient Disclosure List -
Hydrogen chloride	1 %

### Inventory

Product code: AA185

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Components	CAS-No.	Canada (DSL)	Canada (NDSL)
Water	7732-18-5	Present	Not Listed
Hydrogen chloride	7647-01-0	Present	Not Listed
Gold Metal, powder	7440-57-5	Present	Not Listed

Components	CAS-No.	CEPA Schedule I - Toxic Substances
Water	7732-18-5	Not listed
Hydrogen chloride	7647-01-0	Not listed
Gold Metal, powder	7440-57-5	Not listed
Components	CAS-No.	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Water	7732-18-5	Not listed
Hydrogen chloride	7647-01-0	Not listed
Gold Metal, powder	7440-57-5	Not listed

## EU Classification

### EU GHS - SV - CLP 1272/2008

Components	CAS-No.	EU GHS - SV - CLP (1272/2008)
Water	7732-18-5	
Hydrogen chloride	7647-01-0	<p>Hydrogen Chloride: Gases under pressure: H280 Contains gas under pressure, may explode when heated.; Acute toxicity - Inhalation - Acute Tox. 3: H331 Toxic if inhaled. (Minimum classification); Skin corrosion/irritation - Skin Corr. 1A: H314 Causes severe skin burns and eye damage.017-002-00-2  Hydrochloric Acid: Skin corrosion/irritation - Skin Corr. 1B: H314 Causes severe skin burns and eye damage. (C &gt;= 25 %); Specific target organ toxicity - Single exposure - STOT SE 3: H335 May cause respiratory irritation. (C &gt;= 10 %)017-002-01-X  Skin corrosion/irritation - Skin Corr. 1B: H314 Causes severe skin burns and eye damage. (C &gt;= 25 %); Skin corrosion/irritation - Skin Irrit. 2: H315 Causes skin irritation. (10 % &lt;= C &lt;25 %); Serious Eye Damage/Eye Irritation - Eye Irrit. 2: H319 Causes serious eye irritation. (10 % &lt;= C &lt;25 %); Specific target organ toxicity - Single exposure - STOT SE 3: H335 May cause respiratory irritation. (C &gt;= 10 %)017-002-01-X</p>
Gold Metal, powder	7440-57-5	

### EU - CLP (1272/2008)

#### **R-phrase(s)**

R20 - Harmful by inhalation.

R34 - Causes burns.

R36/37/38 - Irritating to eyes, respiratory system and skin.

#### **S -phrase(s)**

S 9 - Keep container in a well-ventilated place.

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S28 - After contact with skin, wash immediately with plenty of water

S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

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S 1/2 - Keep locked up and out of the reach of children.  
 S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

Components	CAS-No.	Classification	Concentration Limits:	Safety Phrases
Water	7732-18-5		No information	
Hydrogen chloride	7647-01-0	Hydrogen Chloride T; R23 C; R35 Hydrochloric Acid: + hydrochloric acid ... % C; R34 - Xi; R37 Concentration Limit(s) : C >= 25 % C; R34-37 10 % <= C < 25 % Xi; R36/37/38	Hydrogen Chloride: 0.02%<=C<0.2% Xi;R36/37/38 0.2%<=C<0.5% C;R34 0.5%<=C<1% C;R20-34 1%<=C<5% C;R20-35 5%<=C T;C;R23-35	For Hydrogen Chloride: S1/2 S9 S26 S36/37/39 S45 Hydrochloric Acid: S(1/2)-S26-S45
Gold Metal, powder	7440-57-5		No information	

The product is classified in accordance with Annex VI to Directive 67/548/EEC

**Indication of danger:**

C - Corrosive.  
 Xn - Harmful.  
 Xi - Irritant.

Xi



**16. OTHER INFORMATION**

**Preparation Date:** 1/22/2018  
**Revision Date:** 1/22/2018  
**Prepared by:** Sonia Owen

**Disclaimer:**

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

**End of Safety Data Sheet**