

## 1. Identification

<b>Product identifier</b>	<b>PALLADIUM, 1,000 ppm ICP STANDARD SOLUTION</b>	
<b>Other means of identification</b>		
<b>Product code</b>	1777	
<b>Recommended use</b>	professional, scientific and technical activities: other professional, scientific and technical activities	
<b>Recommended restrictions</b>	None known.	
<b>Manufacturer/Importer/Supplier/Distributor information</b>		
<b>Manufacturer</b>		
<b>Company name</b>	GFS Chemicals, Inc.	
<b>Address</b>	P.O. Box 245 Powell, OH 43065 United States	
<b>Telephone</b>	Phone	740-881-5501
	Toll Free	800-858-9682
	Fax	740-881-5989
<b>Website</b>	www.gfschemicals.com	
<b>E-mail</b>	service@gfschemicals.com	
<b>Emergency phone number</b>	Emergency Assistance	Chemtrec 800-424-9300

## 2. Hazard(s) identification

<b>Physical hazards</b>	Not classified.	
<b>Health hazards</b>	Skin corrosion/irritation	Category 1A
	Serious eye damage/eye irritation	Category 1
<b>Environmental hazards</b>	Hazardous to the aquatic environment, acute hazard	Category 2
<b>OSHA defined hazards</b>	Not classified.	
<b>Label elements</b>		



<b>Signal word</b>	Danger	
<b>Hazard statement</b>	Causes severe skin burns and eye damage. Causes serious eye damage. Harmful to aquatic life. Harmful to aquatic life with long lasting effects.	
<b>Precautionary statement</b>		
<b>Prevention</b>	Do not breathe mist or vapor. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling.	
<b>Response</b>	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. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician. Wash contaminated clothing before reuse. Specific treatment (see this label).	
<b>Storage</b>	Store locked up.	
<b>Disposal</b>	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.	
<b>Hazard(s) not otherwise classified (HNOC)</b>	None known.	
<b>Supplemental information</b>	% of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. % of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.	

### 3. Composition/information on ingredients

#### Mixtures

Chemical name	Common name and synonyms	CAS number	%
WATER		7732-18-5	92.43
HYDROGEN CHLORIDE		7647-01-0	7.4
PALLADIUM CHLORIDE	PALLADOUS CHLORIDE PALLADIUM (II) CHLORIDE	7647-10-1	0.17

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

### 4. First-aid measures

<b>Inhalation</b>	Move to fresh air. Call a physician if symptoms develop or persist.
<b>Skin contact</b>	Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.
<b>Eye contact</b>	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
<b>Ingestion</b>	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.
<b>Most important symptoms/effects, acute and delayed</b>	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.
<b>Indication of immediate medical attention and special treatment needed</b>	Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.
<b>General information</b>	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

### 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO <sub>2</sub> ).
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.
<b>Specific hazards arising from the chemical</b>	During fire, gases hazardous to health may be formed.
<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Fire fighting equipment/instructions</b>	Move containers from fire area if you can do so without risk.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials.
<b>General fire hazards</b>	No unusual fire or explosion hazards noted.

### 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
<b>Methods and materials for containment and cleaning up</b>	Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.  Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.
<b>Environmental precautions</b>	Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Inform appropriate managerial or supervisory personnel of all environmental releases.

## 7. Handling and storage

### Precautions for safe handling

Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.

### Conditions for safe storage, including any incompatibilities

Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

## 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/m <sup>3</sup>  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/m <sup>3</sup>  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. Eye wash facilities and emergency shower must be available when handling this product.

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

#### Eye/face protection

Wear safety glasses with side shields (or goggles) and a face shield.

#### Skin protection

##### Hand protection

Wear appropriate chemical resistant gloves.

##### Other

Wear appropriate chemical resistant clothing.

#### Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

#### Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

### General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

### Appearance

#### Physical state

Liquid.

#### Form

Liquid.

#### Color

Reddish-brown

### Odor

Not available.

### Odor threshold

Not available.

### pH

Not available.

### Melting point/freezing point

16.76 °F (-8.47 °C) estimated

### Initial boiling point and boiling range

187.31 °F (86.28 °C) estimated

### Flash point

Not available.

### Evaporation rate

Not available.

### Flammability (solid, gas)

Not available.

**Upper/lower flammability or explosive limits**

<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Explosive limit - lower (%)</b>	Not available.
<b>Explosive limit - upper (%)</b>	Not available.

**Vapor pressure** 22.72 hPa estimated

**Vapor density** Not available.

**Relative density** Not available.

**Solubility(ies)**

**Solubility (water)** Not available.

**Partition coefficient (n-octanol/water)** Not available.

**Auto-ignition temperature** Not available.

**Decomposition temperature** Not available.

**Viscosity** Not available.

**Other information**

**Density** 1.016 g/cm3 estimated

**Percent volatile** 99 % estimated

**Specific gravity** 1.02 estimated

**10. Stability and reactivity**

**Reactivity** The product is stable and non-reactive under normal conditions of use, storage and transport.

**Chemical stability** Material is stable under normal conditions.

**Possibility of hazardous reactions** Hazardous polymerization does not occur.

**Conditions to avoid** Contact with incompatible materials.

**Incompatible materials** Amines.

**Hazardous decomposition products** Hydrogen chloride.

**11. Toxicological information****Information on likely routes of exposure**

**Inhalation** May cause irritation to the respiratory system. Prolonged inhalation may be harmful.

**Skin contact** Causes severe skin burns.

**Eye contact** Causes serious eye damage.

**Ingestion** Causes digestive tract burns.

**Symptoms related to the physical, chemical and toxicological characteristics** Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

**Information on toxicological effects****Acute toxicity**

<b>Product</b>	<b>Species</b>	<b>Test Results</b>
PALLADIUM, 1,000 ppm ICP STANDARD SOLUTION (CAS Mixture)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Mouse	19581.082 mg/kg estimated
<i>Inhalation</i>		
LC50	Mouse	14972.9727 ppm, 1 Hours estimated 14972.9727 mg/l, 1 Hours estimated 5551 mg/l
	Rat	42216.2148 ppm, 1 Hours estimated 42216.2148 mg/l, 1 Hours estimated

Product	Species	Test Results
		15651 mg/l
<i>Oral</i>		
LD50	Rabbit	4509 mg/kg
	Rat	99999 mg/kg
<i>Other</i>		
LD50	Mouse	19581.082 mg/kg estimated
	Rabbit	2505 mg/kg
	Rat	1764.7059 mg/kg estimated

Components	Species	Test Results
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HYDROGEN CHLORIDE (CAS 7647-01-0)

**Acute**

*Dermal*

LD50 Mouse 1449 mg/kg

*Inhalation*

LC50 Mouse 1108 ppm, 1 Hours

1108 mg/l, 1 Hours

Rat 3124 mg/l, 1 Hours

3124 ppm, 1 Hours

*Oral*

LD50 Rabbit 900 mg/kg

*Other*

LD50 Mouse 1449 mg/kg

PALLADIUM CHLORIDE (CAS 7647-10-1)

**Acute**

*Oral*

LD50 Rat 200 mg/kg

*Other*

LD50 Rabbit 5 mg/kg

Rat 3 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 serious eye damage.

**Respiratory or skin sensitization**

**Respiratory sensitization** Not available.

**Skin sensitization** This product is not expected to cause skin sensitization.

**Germ cell mutagenicity** No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**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.

**US. National Toxicology Program (NTP) Report on Carcinogens**

Not available.

**Reproductive toxicity** This product is not expected to cause reproductive or developmental effects.

**Specific target organ toxicity - single exposure** Not classified.

**Specific target organ toxicity - repeated exposure** Not classified.

**Aspiration hazard** Not available.

**Chronic effects** Prolonged inhalation may be harmful.

## 12. Ecological information

**Ecotoxicity** Harmful to aquatic life with long lasting effects.

Product	Species	Test Results	
PALLADIUM, 1,000 ppm ICP STANDARD SOLUTION (CAS Mixture)			
<b>Aquatic</b>			
Crustacea	EC50	Daphnia	74.2647 mg/l, 48 hours estimated
Fish	LC50	Fish	3810.8108 mg/l, 96 hours estimated
Components	Species	Test Results	
HYDROGEN CHLORIDE (CAS 7647-01-0)			
<b>Aquatic</b>			
Fish	LC50	Western mosquitofish ( <i>Gambusia affinis</i> )	282 mg/l, 96 hours
PALLADIUM CHLORIDE (CAS 7647-10-1)			
<b>Aquatic</b>			
Crustacea	EC50	Daphnia	0.2495 mg/l, 24 Hours
		Tubificid worm ( <i>Tubifex tubifex</i> )	0.1455 mg/l, 48 Hours
			0.107 - 0.184 mg/l, 48 hours

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

<b>Persistence and degradability</b>	No data is available on the degradability of this product.
<b>Bioaccumulative potential</b>	No data available.
<b>Mobility in soil</b>	No data available.
<b>Other adverse effects</b>	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## 13. Disposal considerations

<b>Disposal instructions</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. 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.
<b>Local disposal regulations</b>	Dispose in accordance with all applicable regulations.
<b>Hazardous waste code</b>	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Waste from residues / unused products</b>	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).
<b>Contaminated packaging</b>	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

<b>UN number</b>	UN1789
<b>UN proper shipping name</b>	Hydrochloric acid
<b>Transport hazard class(es)</b>	
<b>Class</b>	8
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	8
<b>Packing group</b>	II
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Special provisions</b>	A3, A6, B3, B15, IB2, N41, T8, TP2, TP12
<b>Packaging exceptions</b>	154
<b>Packaging non bulk</b>	202
<b>Packaging bulk</b>	242

### IATA

<b>UN number</b>	UN1789
<b>UN proper shipping name</b>	Hydrochloric acid
<b>Transport hazard class(es)</b>	
<b>Class</b>	8

<b>Subsidiary risk</b>	-
<b>Packing group</b>	II
<b>Environmental hazards</b>	No.
<b>ERG Code</b>	8L
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Other information</b>	
<b>Passenger and cargo aircraft</b>	Allowed.
<b>Cargo aircraft only</b>	Allowed.

#### IMDG

<b>UN number</b>	UN1789
<b>UN proper shipping name</b>	HYDROCHLORIC ACID
<b>Transport hazard class(es)</b>	
<b>Class</b>	8
<b>Subsidiary risk</b>	-
<b>Packing group</b>	II
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	No.
<b>EmS</b>	F-A, S-B
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not established.

#### DOT



#### IATA; IMDG



## 15. Regulatory information

**US federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.  
All components are on the U.S. EPA TSCA Inventory List.

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

Not regulated.

#### **CERCLA Hazardous Substance List (40 CFR 302.4)**

HYDROGEN CHLORIDE (CAS 7647-01-0) Listed.

#### **SARA 304 Emergency release notification**

HYDROGEN CHLORIDE (CAS 7647-01-0) 5000 LBS

#### **Superfund Amendments and Reauthorization Act of 1986 (SARA)**

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

**SARA 302 Extremely hazardous substance**

Chemical name	CAS number	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
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HYDROGEN CHLORIDE	7647-01-0	5000	500 lbs		
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**SARA 311/312 Hazardous chemical** No

**SARA 313 (TRI reporting)**

Chemical name	CAS number	% by wt.
HYDROGEN CHLORIDE	7647-01-0	7.4

**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

**US state regulations****US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)**

Not listed.

**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)

**US. Pennsylvania Worker and Community Right-to-Know Law**

HYDROGEN CHLORIDE (CAS 7647-01-0)

**US. Rhode Island RTK**

HYDROGEN CHLORIDE (CAS 7647-01-0)

**US. California Proposition 65**

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.

**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	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).



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

**Issue date** July-16-2015

**Version #** 01

**Disclaimer** GFS Chemicals cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

**Revision Information** Composition / Information on Ingredients: Ingredients  
Physical & Chemical Properties: Multiple Properties  
Transport Information: Proper Shipping Name/Packing Group