INTERNATIONAL STEEL SERVICES, INC.

MATERIAL SAFETY AND HEALTH DATA SHEET

I. IDENTIFICATION

Name:	Hydrochloric Acid Solutions
Grade:	Thirty two (32%) percent
Synonyms:	Muriatic Acid Aqueous Hydrogen Chloride
Cas Name:	Hydrochloric Acid
Manufacturer:	International Steel Serv, Inc.
Address:	661Andersen Drive, #7 Pittsburgh, PA 15220
Chemical Formula:	HCl
SARA/TITLE III Status:	See 'Additional Information' & 'Hazardous Components' sections
Cas Number:	7647-01-0
Emergency Phone:	724-326-4922
Transport Emergency:	CHEMTREC 800-424-9300

II. PHYSICAL DATA

Boiling Point	:84C at 760 mmHg
Freezing Point	:-52.5C at 760 mmHg
Specific Gravity	:1.159
pH Information	:Less than 1
Solubility in Water	:100%
Evaporation Rate	:> than 1 (butyl acetate = 1)
Form	:Liquid
Appearance	:Clear
Color	:Colorless to light yellow
Odor	:Acrid, pungent

III. HAZARDOUS COMPONENTS

Material(s)	Cas No.	Approximate %
Hydrogen Chloride	7647-01-0	32.0%

*Regulated as a Toxic Chemical (listed as Hydrochloric Acid) under Section 312 of Title III/SARA and 40 CFR Part 372.

IV. NONHAZARDOUS COMPONENTS

Material(s)	Cas No.	Approximate %
Water	7732-18-5	68.0%

V. HAZARDOUS REACTIVITY

Instability: Stable, but reacts with many chemicals.

Incompatibility: Reacts with most metals, giving off hydrogen gas; with oxidizing agents, giving chlorine; with cyanide, giving hydrogen cyanide; with sulfides, giving hydrogen sulfide; with formaldehyde, giving bischloromethyl ether (an OSHA regulated carcinogen).

Decomposition: Heat can cause evolution or gaseous hydrogen chloride.

Polymerization: Will not occur.

VI. FIRE AND EXPLOSION DATA

Flash Point: Will not burn.

Flammable Limits in Air: Lower: Not applicable
Upper: Not applicable

Auto-Ignition Temperature: Not applicable.

Auto-Decomposition Temperature: Not applicable.

Fire and Explosion Hazards: May generate flammable, potentially explosive hydrogen gas on contact with most metals. Explosive concentrations of hydrogen may accumulate inside metal equipment.

Extinguishing Media: As appropriate for combustibles in area.

Special Fire Fight Instructions: Use water spray to cool tanks and control vapors. Runoff from fire may cause pollution. Neutralize with lime, soda ash, etc. For exposure to fumes, wear full protective clothing with hood and breathing air supply.

VII. HEALTH HAZARD INFORMATION

Principal Health Hazards: (Including Significant Routes, Effects, Symptoms of Overexposure, and Medical conditions Aggravated by Exposure) This compound is corrosive and causes burns of the eyes and skin. It is a nose and throat irritant causing symptoms of cough, burning in the throat and choking sensation. High or prolonged inhalation exposure may cause pulmonary edema with cough, chest discomfort, and difficulty in breathing. Ingestion may cause severe acid burns of the mouth, throat, esophagus and stomach. Gross overexposure can cause death.

Animal Data: Inhalation 1-hour LC-50: 2810 ppm in rats. Oral LD-50: 900 mg/kg in rabbits.

The compound is corrosive to eyes and skin. Toxic effects described in animals from single inhalation exposures include respiratory irritation, corneal opacity and corrosion of mucosal surfaces. Repeated and long-term inhalation exposures produced changes in the nasal cavity with necrosis and reduced weight gain. Long-term exposures also produced decreased liver weights. By ingestion, a single exposure produce gastric mucosal damage. Administration of repeated oral doses produced decreased weight gain, mortalities, and non-specific changes. Long-term dosing resulted in decreased relative and absolute spleen weights.

Tests in animals demonstrate not carcinogenic activity. Tests have not been performed from mutagenic, developmental or reproductive effects.

Human Health Effects: Human health effects of overexposure by skin or eye contact include skin burns or ulceration; or eye corrosion with corneal or conjunctival ulceration. By inhalation, the effects include irritation of the upper respiratory tract with discomfort and coughing. Ingestion causes severe acid burns of the mouth, throat, chest and abdomen. Vomiting and diarrhea of dark blood may occur with penetration of the esophagus or stomach.

Higher inhalation exposure may lead to corrosion of mucosal surfaces with temporary lung irritation with cough, difficulty in breathing, or shortness of breath; or dental erosion. Fatality may occur from gross overexposure.

Carcinogenicity: Not listed as a carcinogen by IARC, NTP, OSHA or ACGIH.

Exposure Limits - PEL (OSHA, TL V (ACGIH): The OSHA permissible exposure limit (PEL) and ACGIH recommended threshold limit value (TL V) are 5ppm, (7.0 milligrams per cubic meter). These are ceiling limits for exposures not exceeding 15 minutes in length.

Safety Precaution: Don't get in eyes, on skin, on clothing. Avoid breathing vapors or mists. Wash thoroughly with copious amounts of water after handling.

First Aid:
In case of eye contact: Immediately flush eyes with large amounts of water within seconds of contact or suspected contact, while holding the eyelids apart. Continue flushing for at least 5 minutes. Do not try to neutralize the acid. Call a physician immediately. Transfer promptly to a medical facility. Apply cool packs on the eyes while transporting the patient. Avoid freezing affected area.

In case of skin contact: Immediately shower with large quantities of water within seconds of contact or suspected contact, and completely remove all protective clothing while in shower. Flush the skin thoroughly with water for at least 5 minutes. Call for medical assistance while flushing the skin. Keep affected area cool. Avoid freezing affected area. Wash clothes before reuse.

If inhaled: Remove patient to an uncontaminated atmosphere. Call a physician. Check for breathing and pulse. Give check for other injuries. If not breathing, give artificial respiration. Keep patient warm and at rest.

If swallowed: Do not induce vomiting. Give large quantities of water. Call a physician immediately, and transfer promptly to a medical facility. Never give anything by mouth to an unconscious person.

VIII. PROTECTION INFORMATION

Generally Applicable Control Measures: Good general dilution ventilation should be provided to keep fume and mist concentrations below exposure limits. Where exposures exceed OSHA PEL-ceiling limit, local exhaust may be necessary.

IX. PERSONAL PROTECTIVE EQUIPMENT:

Have available and wear as appropriate for exposure conditions when handling containers or operating equipment containing hydrochloric acid solutions.

Eye/Face: Chemical splash goggles. In addition, wear a full length face shield where the possibility exists for face contact due to splashing or spraying of the material.

Respirators: NIOSH/MSHA approved respirator protection. Type of respirator used is dependent on actual and potential airborne HCl levels.

Protective Clothing: As a minimum, acid-proof gauntlet gloves, apron, boots and hard hat with brim should be used in conjunction with eye/face protection during periodic acid handling. Where continuous, potential acid exposure occurs it may be more appropriate to use acid-proof boots, pants, jacket and gloves in conjunction with eye/face protection.

In cases of emergency, or where there is a possibility of considerable exposure, wear a complete acid suit with hood, gloves, boots, and breathing air supply.

X. DISPOSAL INFORMATION

Aquatic Toxicity: Hydrochloric acid is slightly toxic. The 96 hour LC-50 in mosquito fish is 232 mg/L.

Spill, Leak or Release: Evacuate area; keep upwind until gas dispersed. Wear self-contained breathing apparatus if necessary to enter spill area. Dike spills. Prevent liquid from entering sewers, waterways, or low areas. After bulk removal, flush with plenty of water applied to spill area. Neutralize washing with lime or soda ash. Do not flush to sewer before neutralizing.

Reportable discharge is 5000 lbs. Comply with Federal, Sate and local regulations on reporting releases.

Waste Disposal: This material may be RCRA Hazardous Waste. Treatment, storage, transportation and disposal must be in accordance with applicable Federal, State and local regulations. Do not flush to surface water or sanitary sewer system. If approved, recover or drain neutralized washing to a waste treatment plant or transfer to a licensed disposal contractor.

XI. SHIPPING INFORMATION

DOT (172.101)

Proper Shipping Name:	Hydrochloric Acid
Hazard Class:	Corrosive Material
UN Number:	1789
Dot Label(s):	Corrosive
Dot Placard (TT/TC):	Corrosive
Reportable Quantity:	5,000 lb/2270 kg
Shipping Containers:	Tank cars, tank trucks

DOT/IMO (172.102)

Proper Shipping Name:	Hydrochloric Acid Solution
Hazard Class:	Corrosive Material, 8
UN Number:	1789

XII. ADDITIONAL INFORMATION

Storage Conditions: Keep containers tightly closed. Keep away from heat, sparks and flame. Keep in cool place. Do not store or mix with cyanide, sulfides or formaldehyde. Protect containers from damage.

NPCA-HMIS Ratings		NTPA Ratings:	
Health	3	Health	3
Flammability	0	Flammability	0
Reactivity	0	Reactivity	0
Personal Protection	-	Unusual Hazard	-

Personal protection rating to be supplied by user depending on use conditions

SARA/TITLE III Hazard Categories and Lists:

Product Hazard Categories:		Lists:	
Chronic Health	Yes	Extremely Hazardous	No*
Acute Health	Yes	CERCLA Hazardous	Yes
Fire Hazard	No	Toxic Chemicals	Yes
Pressure	No		
Reactivity	No	*yes for HCl gas only	

CANADIAN WHMIS CLASSIFICATION: D-1B; E

DATE OF REVISION: January 21, 2013

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