




# SAFETY DATA SHEET

According to 29 CFR 1910.1200 Hazard Communication Standard 2012 (HazCom 2012)

## SECTION 1: Identification

<b>Product identifier</b>	
Product name	Iron 4 – Reagent A
Product number	R-8009A
<b>Recommended use and restrictions</b>	To be used in accordance with manufacturer instructions or under the direct guidance of the manufacturer.
<b>Manufacturer</b>	Taylor Technologies, Inc. 31 Loveton Circle Sparks, MD 21152 Phone: (410) 472-4340 Emergency phone: (800) 837-8548

## SECTION 2: Hazard(s) Identification

<b>Physical hazards</b>	Corrosive to metals	Category 1
<b>Health hazards</b>	Eye damage/irritation	Category 1
	Skin corrosion/irritation	Category 1
	Acute toxicity, oral	Category 4
	Specific target organ toxicity, repeated exposure	Category 2
	Carcinogen	Category 2
	Sensitization, skin	Category 1
<b>Environmental hazards</b>	Not currently regulated by OSHA. For additional information, refer to section 12 of the SDS.	
<b>Label elements</b>		
Hazard pictograms		
Signal word	Danger	
Hazard statements	Suspected of causing cancer. Harmful if swallowed. May cause allergic skin reaction. Causes severe skin burns and serious eye damage. May cause damage to organs through prolonged or repeated exposure. May be corrosive to metals.	
<b>Precautionary statements</b>		
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection if contact is likely to occur. Wash skin thoroughly after handling. Do not eat, drink, or smoke when using this product. Contaminated work clothing must not be allowed out of the workplace. Do not breathe dust/fumes/gas/mists/vapors/spray. Keep only in original container.	
Response	IF EXPOSED OR CONCERNED: Get medical advice/attention. IF SWALLOWED: Call a physician or poison control center if you feel unwell. Rinse mouth. Do NOT induce vomiting. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Immediately call a physician or poison control center. IF ON SKIN (OR HAIR): Immediately take off all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. IF SKIN IRRITATION OR RASH OCCURS: Get medical advice/attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a physician or poison control center. Absorb spillage to prevent material damage.	
Storage	Store locked up. Store in corrosive-resistant container with corrosive-resistant inner liner. Keep tightly capped. Store out of direct sunlight between 36°F–85°F.	
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.	
<b>Hazards not otherwise classified</b>	Not applicable	

### SECTION 3: Composition/information on Ingredients

Mixture			
Chemical name	Common name and synonyms	CAS number	% w/w
Water	Dihydrogen oxide	7732-18-5	80-100
Hydrogen Chloride	Hydrochloric Acid	7647-01-0	7-13
Hydroxylammonium Chloride	Hydroxylamine Hydrochloride	5470-11-1	7-13
Nonhazardous and other components below reportable levels	Not applicable	Not applicable	0.1-1

### SECTION 4: First-Aid Measures

#### If inhaled

Remove individual to fresh air. Seek medical attention if breathing becomes difficult or if respiratory irritation develops. Give oxygen or artificial respiration if needed.

#### In case of skin contact

Immediately flush skin with plenty of water for at least 20 minutes. If clothing comes in contact with the product, the clothing should be removed and laundered before reuse. Seek medical attention if irritation develops.

#### In case of eye contact

Immediately flush eyes with plenty of water for at least 20 minutes. Remove contact lenses if present and easy to do. Continue rinsing. If symptoms persist or in all cases of concern, seek medical advice.

#### If swallowed

Immediately call a physician or poison control center. Rinse mouth. Never give anything by mouth to a person who is unconscious or is having convulsions. Do NOT induce vomiting unless directed by physician. If vomiting occurs, keep head low so that stomach content does not get into the lungs.

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

Refer to section 2 and/or section 11 of the SDS for the most important known symptoms and effects.

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

Provide general supportive measures and treat symptomatically.

#### General information

Ensure medical personnel are aware of the material(s) involved and take precautions to protect themselves.

### SECTION 5: Firefighting Measures

#### Extinguishing media

Suitable extinguishing media	Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	Do not use a heavy water stream. Use of heavy stream of water may spread fire.

#### Specific hazards arising from the substance or mixture

Fire hazard	Not flammable
Explosion hazard	Not explosive
Reactivity	May be corrosive to metals.
Hazardous combustion products	Carbon oxides, nitrogen oxides, hydrogen chloride gas. Other irritating fumes and smoke.

#### Advice for firefighters

Precautionary measures	Exercise caution when fighting any chemical fire; hazardous fumes will be present.
Firefighting equipment/instructions	Use water spray or fog for cooling exposed containers.
Protection during firefighting	Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	Refer to section 9 of the SDS for flammability properties.

### SECTION 6: Accidental Release Measures

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

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 cleanup. Do not breathe dust/fumes/gas/mists/vapors/spray. 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 protective equipment, refer to section 8 of the SDS.

#### Environmental precautions

Avoid discharge into drains, watercourses, or onto the ground.

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

Ventilate the area. Dike the spilled material where this is possible. Stop leak if it can be done without risk. Absorb spillage to prevent material damage. Absorb in vermiculite, dry sand or earth, and place into containers. Prevent entry into waterways, sewers, basements, or confined areas. Following product recovery, flush area with water to remove residual contamination. Dilute

acid with water and neutralize with dilute base. If not recoverable, dilute with water or flush to holding area and neutralize. Never return spills to original containers for reuse. Contaminated absorbent material may pose the same hazards as the spilled product. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

#### Reference to other sections

For exposure controls and personal protection, refer to section 8 of the SDS. For waste disposal, refer to section 13 of the SDS.

## SECTION 7: Handling and Storage

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

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fumes/gas/mists/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. For personal protective equipment, refer to section 8 of the SDS. Keep away from incompatibles. Observe good industrial hygiene practices. Label containers appropriately.

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

Store in a well-ventilated place. Store in corrosive-resistant container with corrosive-resistant inner liner. Keep tightly capped. Store out of direct sunlight between 36° - 85°F. Store locked up. Store away from incompatible materials (refer to section 10 of the SDS).

## SECTION 8: Exposure Controls/Personal Protection

#### Occupational exposure limits

##### US ACGIH Threshold Limit Values

Components	Type	Value
Hydrochloric Acid (CAS 7647-01-0)	Ceiling	2 mg/m <sup>3</sup>

##### US NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Hydrochloric Acid (CAS 7647-01-0)	Ceiling	7 mg/m <sup>3</sup>
Hydrochloric Acid (CAS 7647-01-0)	IDLH	70 mg/m <sup>3</sup>

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

Components	Type	Value
Hydrochloric Acid (CAS 7647-01-0)	PEL	7 mg/m <sup>3</sup>

#### Biological limit values

##### ACGIH Biological Exposure Indices

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

#### Exposure controls

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. Eyewash facilities and emergency shower must be available when handling this product.

##### Personal protective equipment

Eye/face protection	Wear appropriate chemical safety goggles if contact is likely to occur.
Skin protection	Wear appropriate chemical-resistant gloves and clothing if contact is likely to occur.
Body protection	Wear appropriate protective clothing if contact is likely to occur.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fumes at levels exceeding the exposure limits. Advice should be sought from respiratory protection suppliers.

## SECTION 9: Physical and Chemical Properties

#### Information on basic physical and chemical properties

Physical state	Liquid
Form	Liquid
Color	Clear, colorless, nearly colorless
Odor	Odorless
Odor threshold	No data available
pH	<1

Evaporation rate	No data available
Melting point	No data available
Freezing point	No data available
Initial boiling point (boiling range)	No data available
Flash point	No data available
Specific gravity	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability (solid, gas)	No data available
Upper Flammability Limit	No data available
Lower Flammability Limit	No data available
Vapor pressure	No data available
Vapor density	No data available
Relative density	No data available
Solubility	Soluble in all proportions
Partition coefficient (n-octanol/water)	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

## SECTION 10: Stability and Reactivity

<b>Reactivity</b>	May be corrosive to metals.
<b>Chemical stability</b>	Stable under recommended handling and storage conditions (refer to section 7 of the SDS).
<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid</b>	Contact with incompatible materials. Do not use in areas without adequate ventilation.
<b>Incompatible materials</b>	Strong oxidizing agents, reducing agents, metals, amines, strong bases, hydroxides, alkaline materials, carbonates, cyanides, sulfides, sulfites, formaldehyde.
<b>Hazardous decomposition products</b>	No hazardous decomposition products under normal conditions.

## SECTION 11: Toxicological Information

### Information on toxicological effects

Likely routes of exposure are skin/eye contact and ingestion.

<b>Most important symptoms/effects, acute and delayed</b>	Direct skin contact may cause corrosive skin burns, deep ulcerations, and possibly permanent scarring.
	Direct contact with concentrated solutions may be corrosive and may cause severe damage, including blindness. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
	Inhalation of mists can cause respiratory irritation. Symptoms may include coughing, choking, and wheezing. Inhalation could result in pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed.
	Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus, and possibly the digestive tract. Symptoms may include abdominal pain, vomiting, burns, perforations, bleeding.
	Prolonged or repeated overexposure may affect the circulatory system, kidneys, liver, respiratory system, and skeletal system.
	Possible cancer hazard. May cause cancer, based on animal data.

**Acute toxicity** See below for product and individual ingredient acute toxicity data.

<b>Product</b>	<b>Species</b>	<b>Acute Toxicity Estimate (ATE)</b>
Iron 4 – Reagent A (CAS Mixture)		
<b>Acute</b>		
<i>Dermal</i>		
LD <sub>50</sub>	Rat	>2000 mg/kg
<i>Inhalation</i>		

LC <sub>50</sub>	Rat	>5 mg/L
<i>Oral</i>		
LD <sub>50</sub>	Rat	964 mg/kg
Components	Species	Acute Toxicity Data

Hydrochloric Acid (CAS 7647-01-0)

**Acute**

*Dermal*

LD<sub>50</sub> Rat No data available

*Inhalation*

LC<sub>50</sub> Rat 1.05-1.175 mg/L, 4 hours (mist)

*Oral*

LD<sub>50</sub> Rat 238-277 mg/kg

Hydroxylammonium Chloride (CAS 5470-11-1)

**Acute**

*Dermal*

LD<sub>50</sub> Rat No data available

*Inhalation*

LC<sub>50</sub> Rat No data available

*Oral*

LD<sub>50</sub> Rat 141 mg/kg

<b>Skin corrosion/irritation</b>	Causes severe skin burns
<b>Serious eye damage/eye irritation</b>	Causes serious eye damage
<b>Respiratory sensitization</b>	No data available
<b>Skin sensitization</b>	May cause an allergic skin reaction
<b>Germ cell mutagenicity</b>	No data available
<b>Carcinogenicity</b>	Suspected of causing cancer

**IARC Monographs. Overall Evaluation of Carcinogenicity**

Hydrochloric Acid (CAS 7647-01-0) 3 Not classifiable as a carcinogenicity to humans

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1096)**

Not regulated

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

Not regulated

<b>Reproductive toxicity</b>	No data available
<b>Specific target organ toxicity (single exposure)</b>	No data available
<b>Specific target organ toxicity (repeated exposure)</b>	May cause damage to organs through prolonged or repeated exposure.
<b>Aspiration hazard</b>	No data available

## SECTION 12: Ecological Information

<b>Ecotoxicity</b>	This product is not classified as environmentally hazardous.
<b>Persistence and degradability</b>	No data available
<b>Bioaccumulative potential</b>	No data available
<b>Mobility in soil</b>	No data available
<b>Other adverse effects</b>	Large or frequent spills can have a harmful or damaging effect on the environment.

## SECTION 13: Disposal Considerations

Collect and reclaim or dispose of in sealed containers at a licensed waste disposal site. Since emptied containers may retain product residue, follow label warnings even after container is emptied. This material and its container must be disposed of in a safe manner. Dispose of contents/container in accordance with local/regional/national/international regulations.

## SECTION 14: Transport Information

<b>DOT</b>	
<b>UN number</b>	3264

<b>UN Proper shipping name</b>	Corrosive Liquid, Acidic, Inorganic, N.O.S. (Hydrochloric Acid, Hydroxylammonium Chloride)
<b>Reportable Quantity</b>	None
<b>Class (Subsidiary risk)</b>	8
<b>Label(s)</b>	8
<b>Packing group</b>	II
<b>Special provisions</b>	386, B2, IB2, T11, TP2, TP27
<b>Packaging exceptions</b>	154
<b>Packaging, non-bulk</b>	203

#### IATA

<b>UN number</b>	3264
<b>UN Proper shipping name</b>	Corrosive Liquid, Acidic, Inorganic, N.O.S. (Hydrochloric Acid, Hydroxylammonium Chloride)
<b>Class (Subsidiary risk)</b>	8
<b>Packing group</b>	II
<b>Special provisions</b>	A3, A803

#### IMDG

<b>UN number</b>	3264
<b>UN Proper shipping name</b>	Corrosive Liquid, Acidic, Inorganic, N.O.S. (Hydrochloric Acid, Hydroxylammonium Chloride)
<b>Class (Subsidiary risk)</b>	8
<b>Packing group</b>	II
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	No
<b>Special provisions</b>	274
<b>EmS</b>	F-A, S-B

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

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** This substance/mixture is not intended to be transported in bulk.

**DOT hazard pictograms**



**IATA; IMDG hazard pictograms**



## SECTION 15: Regulatory Information

#### US federal regulations

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

<u>Chemical name</u>	<u>CAS number</u>	<u>Reportable Quantity</u>
Hydrochloric Acid	7647-01-0	5000 lbs

##### SARA 302 Extremely Hazardous Substance (40 CFR 355 Appendices A / B)

Not regulated

##### SARA 304 Emergency Release Notification

Not regulated

##### SARA 311/312 Hazardous Chemical

<u>Chemical name</u>	<u>CAS number</u>
Hydrochloric Acid	7647-01-0
Hydroxylamine Hydrochloride	5470-11-1

**SARA 313 (TRI reporting)**

Not regulated

**TSCA Section 8(b) Chemical Inventory**

All components are on the U.S. EPA TSCA Inventory list.

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

Not regulated

**Other federal regulations****Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs)**

Not regulated

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

Not regulated

**Clean Water Act, Toxic and Priority Pollutants (40 CFR 401.15 and CFR 423, Appendix A)**

Not regulated

**Safe Drinking Water Act (SDWA)**

Not regulated

**US state regulations****California Safe Drinking Water and Toxic Enforcement Act of 1986 (California Proposition 65)**

Not regulated

**Massachusetts Right-to-Know Act**

<u>Chemical name</u>	<u>CAS number</u>
Hydrochloric Acid	7647-01-0

**New Jersey Worker and Community Right-to-Know Act**

<u>Chemical name</u>	<u>CAS number</u>
Hydrochloric Acid	7647-01-0

**Pennsylvania Worker and Community Right-to-Know Act**

<u>Chemical name</u>	<u>CAS number</u>
Hydrochloric Acid	7647-01-0

**Rhode Island Right-to-Know Act**

<u>Chemical name</u>	<u>CAS number</u>
Hydrochloric Acid	7647-01-0

**SECTION 16: Other Information****NFPA Rating**

Health hazard	2
Fire hazard	0
Reactivity	1
Specific	N/A

**Disclaimer**

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