SAFETY DATA SHEET

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

SECTION 1: Identification

Product identifier

Product name: Iron 4 - Reagent A

Product number: R-8009A

Recommended use and restrictions: To be used in accordance with manufacturer instructions or under the direct guidance of the manufacturer.

Manufacturer:

Taylor Technologies, Inc.
31 Loveton Circle
Sparks, MD 21152
Phone: (410) 472-4340
Emergency phone: (800) 837-8548

SECTION 2: Hazard(s) identification

Physical hazards: No data available

Health hazards

Acute toxicity, inhalation	Category 4
Acute toxicity, oral	Category 4
Eye damage/irritation	Category 1
Sensitization, skin	Category 1
Skin corrosion/irritation	Category 1
Specific organ toxicity, repeated exposure	Category 2
Specific organ toxicity, single exposure	Category 3 Respiratory tract irritation

Environmental hazards: No data available

Label elements

Hazard pictograms

Signal word: Danger

Hazard statements: Harmful if inhaled. Harmful if swallowed. Causes severe skin burns and eye damage. May cause allergic skin reaction. May cause respiratory irritation. May cause damage to the kidneys and liver through prolonged or repeated exposure.

Precautionary statements

Prevention: Do not breathe dusts or mists. Use only outdoors or in a well-ventilated area. Wash skin thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection if contact is likely to occur. Do not eat, drink, or smoke when using this product. Contaminated work clothing must not be allowed out of the workplace.

Response: Get medical advice/attention if you feel unwell. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a physician or poison control center if you feel unwell. IF ON SKIN (OR HAIR): Take off immediately 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. 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.

Storage: Keep tightly capped. Store out of direct sunlight between 36°F–85°F. Store in a well-ventilated place. Store locked up.

Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazards not otherwise classified No data available

SECTION 3: Composition/information on ingredients

Mixture

Chemical name	Common name and synonyms	CAS number	%
Water	Dihydrogen oxide	7732-18-5	75–85
Hydrochloric acid	Not available	7647-01-0	5–10
Hydroxylammonium chloride	Hydroxylamine hydrochloride	5470-11-1	5–10
Other components below reportable levels			<0.1

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. Chemical burns must be treated by a physician.

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. Call a physician or poison control center immediately.

If swallowed

Call a physician or poison control center immediately. 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 water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the substance or mixture

Fire hazard	Not flammable
Explosion hazard	Not explosive
Reactivity	Hazardous reactions will not occur under normal conditions.
Hazardous combustion products	Hydrogen chloride gas, nitrogen oxides

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. 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. 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

Precautions for safe handling

Persons with recurrent skin eczema or sensitization problems should be excluded from working with this product. Do not breathe mist or vapor. 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

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

SECTION 8: Exposure controls/personal protection

Occupational exposure limits No occupational exposure limits noted for the ingredient(s)

ACGIH Threshold Limited Values

Components	Type	Value	Form
Hydrochloric acid (CAS 7647-01-0)	Ceiling	2 ppm	Not applicable

NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Hydrochloric acid (CAS 7647-01-0)	Ceiling	7 mg/m^3	Not applicable
		5 ppm	Not applicable

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

Components	Type	Value	Form
Hydrochloric acid (CAS 7647-01-0)	Ceiling	7 mg/m^3	Not applicable

Biological limit values 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.
- 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
Odor	Odorless
Odor threshold	No data available
pH	0.1
Evaporation rate	No data available
Melting point	No data available

Freezing point	No data available
Boiling point	215°F (102°C)
Flash point	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability (solid, gas)	No data available
Vapor pressure	17 mm Hg
Relative vapor density	1.3
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

Reactivity	Hazardous reactions will not occur under normal conditions.
Chemical stability	Stable under recommended handling and storage conditions (refer to section 7 of the SDS)
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use
Conditions to avoid	Contact with incompatible materials. Do not use in areas without adequate ventilation.
Incompatible materials	Carbonyls, cesium carbide, hypochlorites, metals, pyridine, sodium

SECTION 11: Toxicological information

Information on toxicological effects

Inhalation	May cause respiratory irritation
Skin contact	Causes severe skin burns
Eye contact	Causes serious eye damage
Ingestion	May cause irritation, nausea, vomiting, and diarrhea

Most important symptoms/effects, acute and delayed

Direct skin contact may cause corrosive skin burns, deep ulcerations, and possibly permanent scarring.

Direct eye contact may cause serious 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 breathing difficulties.

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, or bleeding.

Prolonged or repeated overexposure may cause damage to the kidneys and liver.

Acute toxicity

Harmful if inhaled. Harmful if swallowed. See below for product acute toxicity estimate (ATE) and individual ingredient acute toxicity data.

Mixture	**Species**	**Test Results**
Iron 4 - Reagent A (CAS Mixture)		
Acute		
Oral		
LD_{50}	Rat	962.93 mg/kg
Components	**Species**	**Test Results**
Hydrochloric acid (CAS 7647-01-0)		
Acute		
Dermal		
LD_{50}	Rabbit	>5010 mg/kg
Inhalation		
LC_{50}	Rat	1.05–1.175 mg/L, 4 hours (mist)

Oral

LD_{50}	Rat	238–277 mg/kg

Hydroxylammonium chloride (CAS 5470-11-1)

Acute

Oral

LD_{50}	Mouse	408 mg/kg
LD_{50}	Rat	141 mg/kg

Respiratory or skin sensitization May cause allergic skin reaction

Germ cell mutagenicity No data available

Carcinogenicity No data available

IARC Monographs: Overall Evaluation of Carcinogenicity

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

Reproductive toxicity No data available

Specific target organ toxicity (single exposure) May cause respiratory irritation

Specific target organ toxicity (repeated exposure) May cause damage to the kidneys and liver through prolonged or repeated exposure

Aspiration hazard No data available

SECTION 12: Ecological information

This product is not classified as environmentally hazardous; however, this does not exclude the possibility that 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

DOT

UN number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, N.O.S. (Hydrochloric acid; Hydroxylammonium chloride)
Transport hazard class(es)	
Class	8
Subsidiary risk	Not listed
Label(s)	8
Packing group	II
Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.
Special provisions	B2, IB2, T11, TP2, TP27
Packaging exceptions	154
Packaging, non-bulk	202
Packaging, bulk	242

IATA

UN number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, N.O.S. (Hydrochloric acid; Hydroxylammonium chloride)
Transport hazard class(es)	
Class	8
Subsidiary risk	Not listed
Packing group	II
Environmental hazards	Not listed
ERG code	8L
Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed
Cargo aircraft only	Allowed

IMDG

UN number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, N.O.S. (Hydrochloric acid; Hydroxylammonium chloride)
Transport hazard class(es)	
Class	8
Subsidiary risk	Not listed

Packing group	II
Environmental hazards	
Marine pollutant	Not listed
EmS	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

IATA; IMDG

SECTION 15: Regulatory information

U.S. federal regulations

This product is a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CERCLA Hazardous Substance (40 CFR 302.4)
Hydrochloric acid (CAS 7647-01-0)

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs)
Hydrochloric acid (CAS 7647-01-0)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Hydrochloric acid (CAS 7647-01-0)

Drug Enforcement Administration (DEA) List 1 & 2, Exempt Chemical Mixtures (21 CFR 1310.12(c))
Hydrochloric acid (CAS 7647-01-0)

Drug Enforcement Administration (DEA) List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2)) and Chemical Code Number
Hydrochloric acid (CAS 7647-01-0)

SARA 302 Extremely Hazardous Substance
Hydrochloric acid (CAS 7647-01-0)

SARA 304 Emergency Release Notification
Hydrochloric acid (CAS 7647-01-0)

SARA 313 (TRI Reporting)
Hydrochloric acid (CAS 7647-01-0)

U.S. state regulations

Massachusetts Right-to-Know Act
Hydrochloric acid (CAS 7647-01-0)

New Jersey Worker and Community Right-to-Know Act
Hydrochloric acid (CAS 7647-01-0)
Hydroxylammonium chloride (CAS 5470-11-1)

Pennsylvania Worker and Community Right-to-Know Act
Hydrochloric acid (CAS 7647-01-0)
Hydroxylammonium chloride (CAS 5470-11-1)

Rhode Island Right-to-Know Act
Hydrochloric acid (CAS 7647-01-0)

SECTION 16: Other information

NFPA Rating

Health hazard	3
Fire hazard	0
Reactivity	2
Specific	N/A

Disclaimer

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