

SECTION 1: Identification

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|---|--|
| Product identifier | |
| Product name | Iron Reagent #1 |
| Product number | R-0851; R-0851-PL |
| 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.

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

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|---|--|
| 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

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|--------------|--|
| 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 Reagent #1 (CAS Mixture) | | |
| Acute | | |
| <i>Oral</i> | | |
| LD ₅₀ | Rat | 962.93 mg/kg |
| Components | Species | Test Results |
| Hydrochloric acid (CAS 7647-01-0) | | |
| Acute | | |
| <i>Dermal</i> | | |
| LD ₅₀ | Rabbit | >5010 mg/kg |
| <i>Inhalation</i> | | |
| LC ₅₀ | Rat | 1.05–1.175 mg/L, 4 hours (mist) |

Oral

LD₅₀

Rat

238–277 mg/kg

Hydroxylammonium chloride (CAS 5470-11-1)

Acute

Oral

LD₅₀

Mouse

408 mg/kg

LD₅₀

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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