



SAFETY DATA SHEET

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

Revision: 11/08/2021

SECTION 1: Identification

| | |
|---|--|
| Product identifier | |
| Product name | Orthotolidine |
| Product number | R-0600 |
| Recommended use and restrictions | Water analysis. 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 Local: (410) 472-4340 – 8am – 5pm EST Toll-free: (800) 837-8548 – 8am – 5pm EST |
| Emergency phone number | |
| CHEMTREC, United States | 1-800-424-9300 – 24-hour service |
| CHEMTREC, International | +1 703-741-5970 – 24-hour service |

SECTION 2: Hazard(s) Identification

| | | |
|------------------------------|--|-------------|
| Physical hazards | Corrosive to metals | Category 1 |
| Health hazards | Eye damage/irritation | Category 1 |
| | Skin corrosion/irritation | Category 1B |
| | Carcinogenicity | Category 1B |
| Environmental hazards | Not currently regulated by OSHA. For additional information, refer to section 12 of the SDS. | |

Label elements

Hazard pictograms



| | |
|---|--|
| Signal word | Danger |
| Hazard statements | Causes severe skin burns and serious eye damage. May cause cancer. May be corrosive to metals. |
| Precautionary statements | |
| Prevention | Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist or vapor. Wash skin thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection if contact is likely to occur. Keep only in original container. |
| Response | 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 SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (OR HAIR): Immediately take off all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a physician or poison control center. IF EXPOSED OR CONCERNED: Get medical advice/attention. |
| Storage | Absorb spillage to prevent material damage. 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. |
| Hazards not otherwise classified | 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 |
| Hydrochloric Acid | Hydrogen Chloride | 7647-01-0 | 5-10 |
| 3,3'-Dimethylbenzidine dihydrochloride | Orthotolidine, o-tolidine dihydrochloride | 612-82-8 | 0.1-1 |

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

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. Give 1-2 glasses of water. 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

Direct skin or eye contact may cause corrosive burns. Symptoms may include pain, redness, or swelling. Scarring or permanent damage, including blindness, could result. Inhalation may cause severe respiratory irritation, such as coughing and wheezing. Inhalation could result in pulmonary edema, symptoms—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, and bleeding.

Refer to section 11 of the SDS for delayed and immediate effects and chronic effects from short- and long-term exposure.

Indication of any immediate medical attention and special treatment needed

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 person under observation. Symptoms may be delayed.

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, chlorine, nitrogen oxides. During fire, gases hazardous to health may be formed, including toxic hydrogen chloride gas. |

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 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 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. Never return spills to original containers for reuse. Contaminated absorbent material may pose the same hazards as the spilled product. In the event of large 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 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

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. Store away from incompatible materials (refer to section 10 of the SDS). Keep only in original container.

SECTION 8: Exposure Controls/Personal Protection

Occupational exposure limits

US ACGIH Threshold Limit Values

| <u>Components</u> | <u>Type</u> | <u>Value</u> |
|-----------------------------------|-------------|------------------------|
| Hydrochloric acid (CAS 7647-01-0) | Ceiling | 2.98 mg/m ³ |

US NIOSH: Pocket Guide to Chemical Hazards

| <u>Components</u> | <u>Type</u> | <u>Value</u> |
|--------------------------------------|-------------|--------------------------------|
| 3,3-Dimethylbenzidine (CAS 119-93-7) | Ceiling | 0.02 mg/m ³ (skin) |
| Hydrochloric acid (CAS 7647-01-0) | Ceiling | 7 mg/m ³ |
| Hydrochloric acid (CAS 7647-01-0) | IDLH | 50 ppm (75 mg/m ³) |

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

| <u>Components</u> | <u>Type</u> | <u>Value</u> |
|-----------------------------------|-------------|---------------------|
| Hydrochloric acid (CAS 7647-01-0) | Ceiling | 7 mg/m ³ |

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 safety glasses with side shields (or 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 to light yellow |
| Odor | Pungent |
| 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 | Not explosive |
| Oxidizing properties | Not oxidizing |

SECTION 10: Stability and Reactivity

| | |
|---|---|
| Reactivity | May be corrosive to metals. |
| 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 | Metals, strong oxidizing materials, strong bases. |
| Hazardous decomposition products | No hazardous decomposition products known. |

SECTION 11: Toxicological Information

| | |
|---|---|
| Information on likely routes of exposure | |
| Inhalation | Avoid inhalation of this product. Use in a well-ventilated area. |
| Skin contact | This chemical may cause severe skin burns and is anticipated to be absorbed through the skin. Protect exposed skin by wearing appropriate PPE. Wash skin thoroughly after handling this product. |
| Eye contact | Direct contact with eyes may cause serious eye damage. Avoid close eye contact; use caution to avoid splashes. Wear eye protection. |
| Ingestion | Do not ingest. Avoid accidental ingestion by observing good hygiene practices. Wash hands thoroughly after handling this product. |
| Symptoms related to the physical, chemical, and toxicological characteristics | Corrosive skin/eye damage may occur. Prolonged or repeated overexposure may affect the circulatory system, kidneys, liver, respiratory system, and skeletal system. This product contains material that may be carcinogenic to humans, based on sufficient evidence of carcinogenicity in experimental animals. Refer to section 4 of the SDS for most important symptoms and effects. |
| Delayed and immediate effects and chronic effects from short- and long-term exposure | |
| Acute toxicity | This product is not classified as an acute toxicity hazard. Acute toxicity estimate (ATE) has been calculated based on chapter 3 of GHS. 0% of the mixture consists of ingredient(s) with unknown acute toxicity. |

Product acute toxicity estimate (ATE)

| | |
|----------------------------|--------------|
| ATEmix (Oral) | > 2500 mg/kg |
| ATEmix (Dermal) | > 5000 mg/kg |
| ATEmix (Inhalation) | > 20 mg/L |

| Component(s) | Species | Acute toxicity data |
|--|----------------------------|-------------------------------------|
| 3,3'- Dimethylbenzidine (CAS 612-82-8) | | |
| LD50 (Oral) | Not applicable | 500 mg/kg (estimate) |
| LD50 (Dermal) | Rabbit | No data available |
| LC50 (Inhalation) | Rat | No data available |
| Hydrochloric acid (CAS 7647-01-0) | | |
| LD50 (Oral) | Rat | 626 mg/kg (Source: vendor SDS) |
| LD50 (Dermal) | Rabbit | >2000 mg/kg (Source: vendor SDS) |
| LC50 (Inhalation) | Rat | 2.2 mg/L vapor (Source: vendor SDS) |
| Skin corrosion/irritation | Causes severe skin burns. | |
| Serious eye damage/eye irritation | Causes serious eye damage. | |
| Respiratory sensitization | No data available | |
| Skin sensitization | No data available | |
| Germ cell mutagenicity | No data available | |
| Carcinogenicity | May cause cancer | |
| IARC Monographs. Overall Evaluation of Carcinogenicity | | |
| 3,3'- Dimethylbenzidine, Group 2B-Possibly carcinogenic to humans | | |
| Hydrochloric acid; Group 3 Not classifiable as to carcinogenicity to humans. | | |
| OSHA Specifically Regulated Substances (29 CFR 1910.1001-1096) | | |
| Not regulated | | |
| US National Toxicology Program (NTP) Report on Carcinogens | | |
| 3,3'- Dimethylbenzidine, Reasonably anticipated to be a human carcinogen | | |
| Reproductive toxicity | No data available | |
| Specific target organ toxicity (single exposure) | No data available | |
| Specific target organ toxicity (repeated exposure) | No data available | |
| Aspiration hazard | No data available | |

SECTION 12: Ecological Information

| | |
|--------------------------------------|--|
| Ecotoxicity | This product is not classified as environmentally hazardous. |
| Persistence and degradability | No data available |
| Bioaccumulative potential | No data available |
| Mobility in soil | No data available |
| Other adverse effects | 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 | 1789 |
| UN Proper shipping name | Hydrochloric acid solution |
| Reportable Quantity | 10lbs, 3,3'-Dimethylbenzidine, 5000lbs Hydrochloric acid |
| Class (Subsidiary risk) | 8 |
| Label(s) | 8 |

| | |
|-----------------------------|---|
| Packing group | II |
| Special provisions | 386, A3, B3, B15, B133, IB2, N41, T8, TP2 |
| Packaging exceptions | 154 |
| Packaging, non-bulk | 202 |

IATA

| | |
|--------------------------------|----------------------------|
| UN number | 1789 |
| UN Proper shipping name | Hydrochloric acid solution |
| Class (Subsidiary risk) | 8 |
| Packing group | II |
| Special provisions | A3, A803 |

IMDG

| | |
|--------------------------------|----------------------------|
| UN number | 1789 |
| UN Proper shipping name | Hydrochloric acid solution |
| Class (Subsidiary risk) | 8 |
| Packing group | II |
| Environmental hazards | |
| Marine pollutant | No |
| Special provisions | None |
| 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 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> |
|------------------------|-------------------|----------------------------|
| 3,3'-Dimethylbenzidine | 119-93-7 | 10 lbs |
| 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> |
|--|-------------------|
| 3,3'-Dimethylbenzidine dihydrochloride | 612-82-8 |
| Hydrochloric acid | 7647-01-0 |

SARA 313 (TRI reporting)

| <u>Chemical name</u> | <u>CAS number</u> |
|------------------------|-------------------|
| 3,3'-Dimethylbenzidine | 119-93-7 |

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)**

WARNING: This product can expose you to 3,3'-Dimethylbenzidine (ortho-Tolidine), which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov

Massachusetts Right-to-Know Act

| <u>Chemical name</u> | <u>CAS number</u> |
|------------------------|-------------------|
| 3,3'-Dimethylbenzidine | 119-93-7 |
| Hydrochloric acid | 7647-01-0 |

New Jersey Worker and Community Right-to-Know Act

| <u>Chemical name</u> | <u>CAS number</u> |
|------------------------|-------------------|
| 3,3'-Dimethylbenzidine | 119-93-7 |
| Hydrochloric acid | 7647-01-0 |

Pennsylvania Worker and Community Right-to-Know Act

| <u>Chemical name</u> | <u>CAS number</u> |
|------------------------|-------------------|
| 3,3'-Dimethylbenzidine | 119-93-7 |
| Hydrochloric acid | 7647-01-0 |

Rhode Island Right-to-Know Act

| <u>Chemical name</u> | <u>CAS number</u> |
|------------------------|-------------------|
| 3,3'-Dimethylbenzidine | 119-93-7 |
| Hydrochloric acid | 7647-01-0 |

SECTION 16: Other Information**NFPA Rating**

| | |
|---------------|-----|
| Health hazard | 3 |
| Fire hazard | 0 |
| Reactivity | 1 |
| Specific | N/A |

Disclaimer

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Issue date:

May 2015

Revision date:

11/08/2021

Revision information:

This document embodies significant change(s) that may impact classification, safe handling, or health information for the associated product(s). The information contained herein should be reviewed in its entirety before handling material.

Identification: Emergency response

Hazard identification: Format

First-aid: Most important symptoms and effects, both acute and delayed

Physical and Chemical properties: Multiple properties

Toxicological Information: Information on likely routes of exposure

Supersedes revision dated November 2019.