

## SAFETY DATA SHEET

### ORTHOTOLIDINE

#### 1. IDENTIFICATION

**Product Name:** Orthotolidine

**Synonyms:** OTO

**Recommended Use:** Use as directed by manufacturer for purposes directly related to water testing.

**Recommended Restrictions:** None known

**Manufacturer/Importer/Supplier/Distribution Information**

**Supplier Name:** Qualco, Inc.

**Supplier Address:** 225 Passaic Street, Passaic, NJ 07055

**Supplier Phone No.:** 973-473-1222

**Supplier Fax No.:** 973-473-0535

**Emergency Phone No.:** CHEMTREC 1-800-424-9300

#### 2. HAZARD IDENTIFICATION

**Physical Hazards:** Corrosive to metals – Category 1

**Health Hazards:** Acute toxicity, oral – Category 4

Carcinogenicity – Category 1B

Eye Damage/Irritation – Category 1

Skin Corrosion/Irritation – Category 1

Specific target organ toxicity, single exposure – Category 3 respiratory tract irritation

**Environmental Hazards:** Not currently regulated by OSHA. Refer to Section 12 of the SDS for additional information.

**Label Elements:**

**Signal Word:** DANGER



**Hazard Statement:** May cause cancer. May be corrosive to metals. Harmful if swallowed. Causes severe skin burns and eye damage. May cause respiratory irritation.

**Precautionary Statement:**

**Prevention:** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist or vapor. Use only outdoors or in a well ventilated area. Wash skin thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Do not eat drink or smoke when using this product. Keep only in original container.

**Response:** Absorb spillage to prevent material damage.

**IF EXPOSED OR CONCERNED:** Get medical advice/attention.

**IF SWALLOWED:** Rinse mouth. Do NOT induce vomiting. Call a physician or poison control center.

**IF ON SKIN (OR HAIR):** Immediately remove all contaminated clothing. Rinse skin with water. If irritation occurs, seek medical attention. 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 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:** Store in original container. Keep container tightly closed when not in use. Store locked up.

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

**Hazard(s) Not Otherwise Classified:** None

**Supplemental Information:** None

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Mixtures:**

Chemical Name	Common Name/Synonyms	Cas No.	Percentage
De-ionized Water	Dihydrogen Oxide	7732-18-5	90 – 99%
Hydrochloric Acid	Muriatic Acid/Hydrogen Chloride	7647-01-0	6 – 10%
Orthotolidine	3,3-dimethylbenzidine dihydrochloride	612-82-8	0.1 – 1%

### 4. FIRST AID MEASURES

**Inhalation:** Move to fresh air. Give oxygen or artificial respiration if needed. Get medical attention immediately.

**Skin Contact:** Immediately flush skin with running water for at least 20 minutes. Immediately take off all contaminated clothing. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

**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.

**Ingestion:** Call a physician or poison control center immediately. Rinse mouth. Never give anything by mouth to an unconscious person 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/effect, acute and delayed:** Direct skin contact may cause severe irritation. Symptoms may include redness, edema, drying, de-fatting and cracking of the skin. Direct contact with concentrated solutions may be harmful to the eyes and may cause severe damage including blindness. Symptoms may include stinging, tearing, redness, swelling and blurred vision.

Inhalation of mists can cause severe respiratory irritation. Symptoms may include coughing, choking, and wheezing.

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.

Possible cancer hazard. May cause cancer, based on animal data.

**Indication of immediate medical attention and special treatment needed:** Provide general supportive measures and treat symptomatically. Immediate medical attention is required.

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

## 5. FIREFIGHTING MEASURES

**Suitable Extinguishing Media:** Water fog. Foam. Dry chemical powder. Carbon dioxide.

**Unsuitable Extinguishing Media:** Do not use water jet as an extinguisher; as this will spread the fire.

**Specific hazards arising from the chemical:** During fire, gases hazardous to health may be formed.

**Special protective equipment and precautions for firefighters:** Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Firefighting Equipment/Instructions:** Firefighters should wear full protective gear. Evacuate the area promptly. Fight fire from upwind to avoid exposure to combustion products. Cool containers/tanks with water spray. Do not get water inside container. Move containers from fire area if it can be done without risk. Prevent fire extinguishing water from contaminating surface water or the ground water system.

**Specific methods:** Use standard firefighting procedures and consider the hazards of other involved materials.

**General Fire hazards:** Not combustible

**Hazardous Combustion Products:** Carbon oxides. Hydrogen chloride. Other irritating fumes and smoke.

## 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.

**Methods and Materials for Containment and Cleaning Up:** Large Spills: Ventilate the area. Stop leak if it can be done without risk. Use water spray to reduce vapors or divert vapor cloud drift. 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, sewer, basements, or confined areas.

Following product recovery, flush area with water.

Small Spills: Absorb spillage with noncombustible, absorbent material. Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for reuse. For waste disposal, refer to section 13 of the SDS.

Contaminated absorbent material may pose the same hazards as the spilled product.

In the event of a spill or accidental release, verify relevant authorities in accordance with all applicable regulations.

**Environmental Precautions:** Avoid discharge into drains, watercourses or onto the ground.

## 7. HANDLING AND STORAGE

**Precautions for Safe Handling:** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Pregnant or breastfeeding women must not handle this product.

Use only outdoors or in a well ventilated area. Wear appropriate personal protective equipment. Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. When using, do not eat, drink or smoke. Keep away from heat and other incompatibles. Avoid prolonged exposure. Wash skin thoroughly after handling. For personal protective equipment, refer to section 8 of this SDS. Observe good industrial hygiene practices. Label containers appropriately.

**Conditions for Safe Storage including any incompatibilities:** Store locked up. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well ventilated place. Store away from incompatible materials (refer to section 10 of the SDS).

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Occupational Exposure Limits

Chemical Name	ACGIH TLV	OSHA PEL	NIOS IDLH
Orthotolidine dihydrochlorous Hydrate (3,3-dimethylbenzidine Dihydrochloride) CAS #612-82-8			None Established
Hydrochloric Acid CAS #7647-01-0	Ceiling 2 ppm	Ceiling 5 ppm (7 mg/m <sub>3</sub> )	IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 ppm
Water CAS #7732-18-5			None Established

**Biological Limit Values:** No biological exposure limits noted for the ingredients.

**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.

### Individual Protective Measures such as Personal Protective Equipment:

**Eye/Face Protection:** Wear safety glasses with side shields (or goggles) and a face shield. Provide an emergency eyewash fountain and quick-drench shower in the immediate work area.

### Skin Protection:

**Hand Protection:** Wear appropriate chemical resistant gloves. Advice should be sought from glove suppliers.

**Other:** Wear appropriate chemical resistant 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

**Thermal Hazards:** When necessary, wear appropriate thermal protective clothing.

**General Hygiene Considerations:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contamination.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

<b>Physical State:</b>	Liquid
<b>Form:</b>	Liquid
<b>Color:</b>	Clear to light yellow
<b>Odor:</b>	Odorless
<b>Odor Threshold:</b>	Not available
<b>pH:</b>	0.01
<b>Melting Point:</b>	Not Available
<b>Freezing Point:</b>	Not Available
<b>Boiling Point:</b>	212°F (100°C)
<b>Flash Point:</b>	Not Applicable
<b>Evaporation Rate:</b>	Not Available
<b>Flammability:</b>	Not Applicable
<b>Upper/Lower Flammability or Explosive Limits:</b>	
<b>Flammability Limit, Lower (%):</b>	Not applicable
<b>Flammability Limit, Upper (%):</b>	Not applicable
<b>Explosive Limit, Lower (%):</b>	Not available
<b>Explosive Limit, Upper (%):</b>	Not available
<b>Vapor Pressure:</b>	17 mm Hg
<b>Vapor Density:</b>	0.6
<b>Relative Density:</b>	1.03 g/cm <sup>3</sup>
<b>Solubility in Water:</b>	Soluble in all proportions
<b>Partition Coefficient:</b>	Not available
<b>Auto-ignition temperature:</b>	Not available
<b>Decomposition temperature:</b>	Not available
<b>Viscosity:</b>	Not available
<b>Other Information</b>	
<b>Explosive Properties:</b>	Not applicable
<b>Oxidizing Properties:</b>	Not applicable
<b>Percent Volatile:</b>	99%
<b>Specific Gravity:</b>	1.03

## 10. STABILITY AND REACTIVITY

**Reactivity:** This product is stable and non reactive under normal conditions of use, storage and transport.

**Chemical Stability:** Material is stable under normal conditions.

**Possibility of hazardous reactions:** No dangerous reaction known under conditions of normal use.

**Conditions to Avoid:** High temperatures. Direct sources of heat. Exposure to light. Direct sunlight. Contact with incompatible materials. Do not use in areas without adequate ventilation.

**Incompatible Materials:** Acetylides aldehydes. Bases. Metal compounds. Oxidizing agents. Reducing agents. Some plastics.

**Hazardous Decomposition Products:** Chlorine Hydrogen chloride. For hazardous combustion products, refer to Section 5 of the SDS.

## 11. TOXICOLOGICAL INFORMATION

### Information on Likely Routes of Exposure

**Inhalation:** May cause respiratory irritation

**Skin Contact:** Causes severe skin burns

**Eye Contact:** Causes serious eye damage

**Ingestion:** Harmful if swallowed.

**Most Important Symptoms/Effects, Acute and Delayed:** Direct skin contact may cause severe irritation. Symptoms may include redness, edema, drying, defatting, and cracking of the skin. Direct contact with concentrated solutions may be harmful to the eyes and may cause severe damage including blindness. Symptoms may include stinging, tearing, redness, swelling and blurred vision.

Inhalation of mists can cause severe respiratory irritation. Symptoms may include coughing, choking, and wheezing.

Ingestion may produce burns to the lips, oral cavity, upper airway, asophagus and possibly the digestive tract. Symptoms may include abdominal pain, vomiting, burns, perforations, bleeding.

Possible cancer hazard. May cause cancer based on animal data.

**Acute Toxicity:** Harmful if swallowed.

Product	Species	Test Results
Orthotolidine (CAS Mixture)		
Acute Dermal LD <sub>50</sub>	Rabbit	Not available
Acute Inhalation LC <sub>50</sub>	Rat	16.91 mg/L, 4 hours (mist)
Acute Oral LD <sub>50</sub>	Rat	439 mg/kg
Hydrochloric Acid (CAS #7647-01-0)		
Acute Dermal LD <sub>50</sub>	Rabbit	>5010 mg/kg
Acute Inhalation LC <sub>50</sub>	Rat	1.05 – 1.175 mg/L, 4 hours (mist)
Acute Oral LD <sub>50</sub>	Rabbit	Not Available
Deionized Water (CAS #7732-18-5)		
Acute Dermal LD <sub>50</sub>	Rabbit	Not available
Acute Inhalation LC <sub>50</sub>	Rat	Not available
Acute Oral LD <sub>50</sub>	Rat	>89840 mg/kg

**Skin Corrosion/Irritation:** Causes severe skin burns and eye damage.

**Serious Eye Damage/Eye Irritation:** Causes serious eye damage.

**Respiratory Sensitization:** Not expected to be a respiratory sensitizer

**Skin Sensitization:** Not expected to be a skin sensitizer.

**Germ cell Mutagenicity:** Not expected to be mutagenic

**Carcinogenicity:** May cause cancer

### IARC Monographs-Overall Evaluation of Carcinogenicity

Orthotolidine (CAS #612-82-8): 2B Possibly carcinogenic to humans

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

**Reproductive Toxicity:** This product is not expected to cause reproductive or developmental effects.

**Specific Target Organ Toxicity, single exposure:** Not classified as a specific target organ toxicity – single exposure.

**Specific target organ toxicity, repeated exposure:** Not classified as a specific target organ toxicity – repeated exposure.

**Aspiration Toxicity:** Not expected to be an aspiration hazard

**Chronic Effects:** Frequent or prolonged overexposure may affect the kidneys and liver

## 12. ECOLOGIICAL INFORMATION

**Ecotoxicity:** Very toxic to aquatic life

Components	Species	Test Results
Hydrochloric acid (CAS #7647-01-0)(Aquatic)		
<b>Acute</b>		
Algae – EC <sub>50</sub>	Green Algae (Selenastrum capricomutum)	0.492 mg/L, 72 hours
Crustacea EC <sub>50</sub>	Water flea (Daphnia magna)	0.492 mg/L, 48 hours
Fish LC <sub>50</sub>	Carp (Cyprinus carpio communis)	4.92 mg/L, 96 hours
<b>Chronic</b>		
Algae NOEC	Green algae (Selenastrum capricomutum)	0.097 mg/L, 72 hours

**Persistence and degradability:** Not available

**Bioaccumulative potential:** Not available

**Mobility in soil:** Not available

**Other adverse effects:** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from the component.

## 13. DISPOSAL CONSIDERATIONS

**Disposal Instructions:** Collect and reclaim or dispose of in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local regional/national/international regulations.

**Local Disposal Regulations:** Dispose of in accordance with all applicable regulations.

**Hazardous Waste Code:** The waste code should be assigned in discussion with the user, the producer and the waste disposal company.

**Waste from Residues/Unused Products:** Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (refer to Disposal instructions).

**Contaminated Packaging:** Empty containers should be taken to an approved waste-handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

## 14. TRANSPORTATION INFORMATION

### DOT

UN Number: UN1789

UN Proper Shipping Name: Hydrochloric acid solution

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: A3, A6, B3, B15, IB2, N41, T8, TP2, TP12

Packaging Exceptions: 154

Packaging Non-bulk: 202

Packaging Bulk: 242

**IATA**

UN Number: UN1789

UN Proper Shipping Name: Hydrochloric acid solution

Transport Hazard Class(es)

Class 8

Subsidiary Risk: Not listed

Packaging Group II

Environmental Hazards: No

ERG Code 8L

Special Precautions for User: Read safety instructions, SDS and emergency procedures before handling.

Other Information: Passenger and/or Cargo Aircraft allowed

**IMDG:**

UN Number: UN1789

UN Proper Shipping Name: Hydrochloric Acid Solution

Transport Hazard Class(es)

Class 8

Subsidiary Risk Not Listed

Packing Group II

Environmental Hazards

Marine Pollutant: No

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 or MARPOL 73/78 and the IBC code: This substance/mixture is not intended to be transported in bulk.

**15. REGULATORY INFORMATION**

**US Federal Regulations:** This product is a Hazardous Chemical as defined by OSHA Hazard Communication Standard 29 CFR 1910.1200.

All components are on the US EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt D): Not regulated

Superfund Amendments and Reauthorization Act of 1986 (SARA)

**Hazard Categories:** Immediate Hazard: yes



Delayed Hazard: yes

Fire Hazard: no

Pressure Hazard: No

Reactivity Hazard: No

### SARA 302 Extremely Hazardous Substance

Chemical Name	CAS Number	Reportable Quantity (b)	Threshold Planning Qty. (b)	Threshold Planning Qty. Lower Value	Threshold Planning Qty. Upper Value
Hydrochloric Acid	7647-01-0	5000	500	Not applicable	Not applicable

SARA 311/312 Hazardous Chemical

Not regulated

SARA 313 (TRI Reporting)

Chemical Name	CAS Number	% by Weight
Hydrochloric Acid	7647-01-0	5-10
Orthotolidine	612-62-8	0.1-5

### Other Federal Regulations

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

Clean Air Act (CAA) Section 112® Accidental Release Prevention (40 CFR 68.130): Hydrochloric Acid (CAS #7647-01-0)

Drug Enforcement Administration (DEA) List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(2) and Chemical Code Number: Hydrochloric acid (CAS #7647-01-0) 6545

Drug Enforcement Administration (DEA) List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12©): hydrochloric acid (CAS #7647-01-0) 20% WV

DEA Exempt Chemical Mixture Code Number: Hydrochloric acid (CAS #7647-01-0) 6545

Safe Drinking Water Act (SDWA): Not regulated

### US State Regulations:

California Controlled Substances CA Department of Justice (California Health and Safety Code Section 11100) Not regulated

Massachusetts Right-To-Know Act: Hydrochloric Acid (CAS #6747-01-0)

New Jersey Worker and Community Right To Know Act: Hydrochloric acid (CAS \$6747-01-0)  
Orthotolidine (CAS #612-82-8)

Pennsylvania Worker and Community Right To Know Act: Hydrochloric Acid (CAS #7647-01-0)

Rhode Island Right-To-Know Act: Hydrochloric Acid (CAS #7647-01-0)  
Orthotolidine (CAS #612-82-8)

California Proposition 65 (California Safe Drinking Water and Toxic Enforcement Act of 196): WARNING. This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

US California Proposition 65 – CRT: Listed date/Carcinogenic substance

Orthotolidine (CAS #612-82-8) Listed April 1, 1992

### International Inventories

Country or Region	Inventory Name	On Inventory Yes/No*
Australia	Australian Inventory of Chemical Substances (AICS)	No

Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances Produced or Imported In China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Existing and New Chemical Substances (ENCS)	yes
Korea	Existing Chemical List (ECL)	No
New Zealand	New Zealand Inventory of Chemicals (NZIoC)	Yes
Phillipines	Phillipine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substance Control Act (TSCA)	Yes

\*A "yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(ies).

\*A "no" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(ies).

## 16. OTHER INFORMATION

### NFPA Listing:

Health Hazard: 2  
 Flammability: 0  
 Instability: 0  
 Physical & Chemical Hazards: N/A

### HMIS Listing:

Health Hazard: 2  
 Flammability: 0  
 Physical Hazards: 1  
 Personal Precautions: B

**Reason for Revision:** To comply with new SDS format

**Revision Date:** June 2015

**Disclaimer:** The information contained in this SDS is offered for consideration and a guidance for safe handling, use, storage, transportation, disposal, and release of this product and is not considered a warranty of quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.