

1. Identification

Product identifier Orthotolidine
Product code R-0600
Recommended use Use as directed by manufacturer for purposes directly related to water testing.
Recommended restrictions None known

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name Taylor Technologies, Inc.
Address 31 Loveton Circle
Sparks, MD 21152
United States
Telephone (410) 472-4340 Monday–Friday, 8:00 a.m.–4:30 p.m.
Website www.taylortechnologies.com
E-mail Not available
Emergency phone number (800) 837-8548

2. Hazard(s) 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): Take off immediately 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 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 corrosive-resistant container with a corrosive-resistant liner. Store in a well-ventilated place. Keep container tightly closed. 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 and synonyms	CAS number	%
Deionized water	Dihydrogen oxide	7732-18-5	90–99
Hydrochloric acid	Muriatic acid; Hydrogen chloride	7647-01-0	5–10
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 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/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, 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, notify 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 the 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****U.S. 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 available

U.S. ACGIH Threshold Limit Values

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

U.S. NIOSH: Pocket Guide to Chemical Hazards

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

Biological limit values

No biological exposure limits noted for the ingredient(s)

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 protection 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

Physical state	Liquid
Form	Liquid
Color	Clear to light yellow
Odor	Odorless
Odor threshold	Not available
pH	0.01
Melting point/freezing point	Not available
Initial boiling point and boiling range	212°F (100°C)
Flash point	Not applicable (does not burn)
Evaporation rate	Not available
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits	
Flammability limit, lower (%)	Not applicable
Flammability limit, upper (%)	Not applicable
Explosive limit, lower (%)	Not available
Explosive limit, upper (%)	Not available
Vapor pressure	17 mm Hg
Vapor density	0.6
Relative density	1.03 g/cm ³
Solubility(ies)	
Solubility (water)	Soluble in all proportions
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	Not applicable
Decomposition temperature	Not available
Viscosity	Not available
Other information	
Explosive properties	Not applicable
Oxidizing properties	Not applicable

Percent volatile	99%
Specific gravity	1.03

10. Stability and reactivity

Reactivity	This product is stable and nonreactive 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, 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.

Acute toxicity

Harmful if swallowed

Product	Species	Test Results
Orthotolidine (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD ₅₀	Rabbit	Not available
<i>Inhalation</i>		
LC ₅₀	Rat	18.91 mg/L, 4 hours (mist)
<i>Oral</i>		
LD ₅₀	Rat	439 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)
<i>Oral</i>		
LD ₅₀	Rat	238–277 mg/kg
Deionized water (CAS 7732-18-5)		
Acute		
<i>Dermal</i>		
LD ₅₀	Rabbit	Not available

<i>Inhalation</i>		
LC ₅₀	Rat	Not available
<i>Oral</i>		
LD ₅₀	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. Ecological information

Ecotoxicity Very toxic to aquatic life

Components	Species	Test Results
Hydrochloric acid (CAS 7647-01-0) – Aquatic		
Acute		
<i>Algae</i>		
EC ₅₀	Green algae (<i>Selenastrum capricornutum</i>)	0.492 mg/L, 72 hours
<i>Crustacea</i>		
EC ₅₀	Water flea (<i>Daphnia magna</i>)	0.492 mg/L, 48 hours
<i>Fish</i>		
LC ₅₀	Carp (<i>Cyprinus carpio communis</i>)	4.92 mg/L, 96 hours
Chronic		
<i>Algae</i>		
NOEC	Green algae (<i>Selenastrum capricornutum</i>)	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 this 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
Packing 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 cargo aircraft	Allowed
Cargo aircraft only	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 of MARPOL 73/78 and the IBC Code This substance/mixture is not intended to be transported in bulk.

DOT



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.

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

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

Not regulated

CERCLA Hazardous Substance (40 CFR 302.4)

Hydrochloric acid (CAS 7647-01-0)

SARA 304 Emergency Release Notification

Hydrochloric acid (CAS 7647-01-0) 5000 lbs.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1096)

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 (lb.)	Threshold planning quantity (lb.)	Threshold planning quantity lower value	Threshold planning quantity 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	612-82-8	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(r) 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(f)(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(c))

Hydrochloric acid (CAS 7647-01-0) 20% W/V

DEA Exempt Chemical Mixtures Code Number

Hydrochloric acid (CAS 7647-01-0) 6545

Safe Drinking Water Act (SDWA)

Not regulated

U.S. 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 7647-01-0)

New Jersey Worker and Community Right-to-Know Act

Hydrochloric acid (CAS 7647-01-0)

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 1986 (Proposition 65): WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

U.S. - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Orthotolidine Listed: April 1, 1992

(CAS 612-82-8)

International inventories

Country(ies) 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 Chemicals List (ECL)	no
New Zealand	New Zealand Inventory of Chemicals (NZIoC)	yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	yes
United States & Puerto Rico	Toxic Substances 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, including date of preparation or last revision

List of abbreviations

ACGIH: American Conference of Governmental Industrial Hygienists
AICS: Australian Inventory of Chemical Substances
CAA: Clean Air Act
CAS: Chemical Abstract Services
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act
CFR: Code of Federal Regulations
CSA: Canadian Standards Association
DEA: Drug Enforcement Agency
DOT: Department of Transportation
DSL: Domestic Substances List
EC: effective concentration
ECL: Existing Chemicals List
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
ENCS: Existing and New Chemical Substances
EPA: Environmental Protection Agency
HAP: hazardous air pollutants
HMIS: Hazardous Materials Identification System
HNOC: hazards not otherwise classified

HPA: Hazardous Products Act
HSDB: Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
IBC Code: International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk
ICAO: International Civil Aviation Organization
IECSC: Inventory of Existing Chemical Substances Produced or Imported in China
IMDG: International Maritime Dangerous Goods
IUCLID: International Uniform Chemical Information Database
LC: lethal concentration
LD: lethal dose
MARPOL: marine pollution
MSHA: Mine Safety and Health Administration
NDSL: Non-Domestic Substances List
NFPA: National Fire Protection Association
NIOSH: National Institute of Occupational Safety and Health
NOEC: no observable effect concentration
NTP: National Toxicology Program
NZIoC: New Zealand Inventory of Chemicals
OECD: Organisation for Economic Co-operation and Development
OEL: occupational exposure limits
OSHA: Occupational Safety and Health Administration
PEL: permissible exposure limits
PICCS: Philippine Inventory of Chemicals and Chemical Substances
PPE: personal protective equipment
RCRA: Resource Conservation and Recovery Act
Act RQ: reportable quantity
RTECS: Registry of Toxic Effects of Chemical Substances
RTK: right to know
SARA: Superfund Amendments and Reauthorization Act
SDS: Safety Data Sheet
SDWA: Safe Drinking Water Act
STEL: short-term exposure limit
TLV: threshold limit values
TSCA: Toxic Substances Control Act
TWA: time-weighted average
VOC: volatile organic compounds
WEL: workplace exposure limit

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