


SECTION 1: Identification

Product identifier	
Product name	Chlorine Reagent #2
Product number	R-0604; R-0604-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	Corrosive to metals	Category 1
Health hazards	Carcinogenicity	Category 1B
	Eye damage/irritation	Category 1
	Skin corrosion/irritation	Category 1
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	May cause cancer. Causes severe skin burns and eye damage. 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 mists or vapors. Wear protective gloves/protective clothing/eye protection/face protection if contact is likely to occur. Wash skin thoroughly after handling. Keep only in original container.	
Response	IF EXPOSED OR CONCERNED: Get medical advice/attention. 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 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. Absorb spillage to prevent material damage.	
Storage	Store in corrosive-resistant container with a corrosive-resistant inner liner. Keep tightly capped. Store out of direct sunlight between 36°F–85°F. Store locked up.	
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	90–95
Hydrochloric acid	Muriatic Acid	7647-01-0	1-5
3,3'-Dimethylbenzidine dihydrochloride	Orthotolidine dihydrochloride; 4,4'-Bianisidine; 4,4'-Bi-o-toluidine	612-82-8	0.1–1

SECTION 4: First-aid measures

If inhaled

Remove individual to fresh air. Immediately call a physician or poison control center. 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 advice/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. Immediately call a physician or poison control center.

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.

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, hydrogen chloride gas, nitrogen oxides. Other irritating fumes and smoke.

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. Dilute acid with water and neutralize with dilute base. If not recoverable, dilute with water or flush to holding area and neutralize. 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

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 dust or mist. 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 in corrosive-resistant container with a corrosive-resistant inner liner. Keep tightly capped. Store out of direct sunlight between 36°F–85°F. Store locked up. Store away from incompatible materials (refer to section 10 of the SDS).

SECTION 8: Exposure controls/personal protection

Occupational exposure limits

US ACGIH Threshold Limit Values

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

US NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Hydrochloric acid (CAS 7647-01-0)	Ceiling	7 mg/m ³
Hydrochloric acid (CAS 7647-01-0)	IDLH	74.5 mg/m ³

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

Components	Type	Value
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 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 to light yellow
Odor	Odorless
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
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	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 under conditions of normal use.

SECTION 11: Toxicological information

Information on toxicological effects

Likely routes of exposure are skin/eye contact and ingestion.

Most important symptoms/effects, acute and delayed	<p>Direct skin contact may cause corrosive skin burns, deep ulcerations, and possibly permanent scarring.</p> <p>Direct contact with concentrated solutions may be corrosive and may cause severe damage, including blindness. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.</p> <p>Inhalation of mists can cause respiratory irritation. Symptoms may include coughing, choking, and wheezing. Inhalation could result in pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed.</p> <p>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.</p> <p>Prolonged or repeated overexposure may affect the circulatory system, kidneys, liver, respiratory system, and skeletal system.</p> <p>Contains material, based on animal data, that could possibly cause birth defects.</p>
Acute toxicity	This product is not classified as an acute toxicity hazard. See below for product and individual ingredient acute toxicity data.

Product	Species	Acute Toxicity Estimate (ATE)
Chlorine Reagent #2 (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD ₅₀	Mouse	>2000 mg/kg
<i>Inhalation</i>		

LC ₅₀	Rat	>20 mg/L
<i>Oral</i>		
LD ₅₀	Rat	>2000 mg/kg

Components	Species	Acute Toxicity Data
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Hydrochloric acid (CAS 7647-01-0)

Acute

Dermal

LD ₅₀	Mouse	1449 mg/kg
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Inhalation

LC ₅₀	Rat	2.327 mg/L
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Oral

LD ₅₀	Rat	238 mg/kg
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3,3'-Dimethylbenzidine dihydrochloride (CAS 612-82-8)

Acute

Dermal

LD ₅₀	Mouse	No data available
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Inhalation

LC ₅₀	Rat	No data available
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Oral

LD ₅₀	Rat	404 mg/kg
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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

IARC Monographs. Overall Evaluation of Carcinogenicity

3,3'- Dimethylbenzidine; Group 2B-Possibly carcinogenic 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	None
Class (Subsidiary risk)	8
Label(s)	8
Packing group	II
Special provisions	386, A3, A6, B3, B15, B133, IB2, N4, 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

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>
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	119-93-7
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)**

<u>Chemical name</u>	<u>CAS number</u>
Hydrochloric acid	7647-01-0

Clean Air Act (CAA) Section 112(r) 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)**

<u>Chemical name</u>	<u>CAS number</u>
3,3'-Dimethylbenzidine	612-82-8

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

<u>Chemical name</u>	<u>CAS number</u>
3,3'-Dimethylbenzidine	612-82-8
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	612-82-8
Hydrochloric acid	7647-01-0

Pennsylvania Worker and Community Right-to-Know Act

<u>Chemical name</u>	<u>CAS number</u>
Hydrochloric acid	7647-01-0

Rhode Island Right-to-Know Act

<u>Chemical name</u>	<u>CAS number</u>
Hydrochloric acid	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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