

Safety Data Sheet acc. to OSHA HCS (HazCom 2012)

Printing date 07/30/2024

Reviewed on 07/30/2024

1 Identification

- **Product identifier**
- **Trade name: Chloride HR Titrant BC2**
- **Catalogue number:**
56Z014198, 56L014165, 56U014165, 56L014172, 56L014130, 56U014130, 56L014197, 56U014197, 56L0141, SDT026
- **Application of the substance / the mixture:** Reagent for water analysis
- **Manufacturer/Supplier:**
Tintometer Inc.
6456 Parkland Drive
Sarasota, FL 34243
USA
phone: (941) 756-6410
fax: (941) 727-9654
www.lovibond.us
Made in Germany
- **Emergency telephone number:** + 1 866 928 0789 (English, French, Spanish)

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS05 Corrosion

Corrosive to Metals 1 H290 May be corrosive to metals.
Eye Damage 1 H318 Causes serious eye damage.



GHS09 Environment

Aquatic Acute 1 H400 Very toxic to aquatic life.
Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.



GHS07

Skin Irritation 2 H315 Causes skin irritation.

- **Label elements**

- **GHS label elements** The product is classified and labeled according to the Hazard Communication Standard (HCS).

- **Hazard pictograms**



GHS05

GHS09

- **Signal word** Danger

- **Hazard-determining components of labeling:**

silver nitrate

- **Hazard statements**

H290 May be corrosive to metals.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H410 Very toxic to aquatic life with long lasting effects.

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Precautionary statements

- P280 Wear protective gloves/protective clothing/eye protection.
- P273 Avoid release to the environment.
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a doctor.
- P302+P352 If on skin: Wash with plenty of water.
- P332+P313 If skin irritation occurs: Get medical advice/attention.

• **Other hazards** No further relevant information available.

* 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** aqueous solution
- **Composition and Information on Ingredients:**
Percent ranges are used due to the confidential product information.

CAS: 7761-88-8	silver nitrate	2.5-<5%
EINECS: 231-853-9	⚠ Oxidizing Solids 2, H272; ⚠ Skin Corrosion 1B, H314; ⚠ Aquatic Acute 1, H400 (M=1000); Aquatic Chronic 1, H410 (M=100); ⚠ Acute Toxicity - Oral 4, H302	
Index number: 047-001-00-2		

• **Additional information:** For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**
Immediately rinse with plenty of water.
If skin irritation continues, consult a doctor.
- **After eye contact:**
Rinse opened eye for several minutes (at least 15 min) under running water.
Call a doctor immediately.
- **After swallowing:**
Rinse out mouth and then drink 1-2 glasses of water.
If symptoms persist consult doctor.
- **Most important symptoms and effects, both acute and delayed**
Irritation and corrosion
after swallowing of large amounts:
irritations
gastric or intestinal disorders
vomiting
cardiovascular disorders
CNS disorders
methaemoglobinaemia
- **Danger:**
Risk of serious damage to eyes.
Risk of corneal clouding.
- **Indication of any immediate medical attention and special treatment needed:** No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**
The product is not combustible.
Formation of toxic gases is possible during heating or in case of fire.
In case of fire, the following can be released:
nitrous gases
Nitrogen oxides (NOx)

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- **Advice for firefighters**
- **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
- **Additional information**
Collect contaminated fire fighting water separately. It must not enter the sewage system.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Ambient fire may liberate hazardous vapours.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
- **Advice for non-emergency personnel:**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
- **Advice for emergency responders:** Protective equipment: see section 8
- **Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
- **Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Absorb with liquid-binding material (sand, diatomite, universal binders).
Dispose contaminated material as waste according to section 13.
- **Reference to other sections**
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Precautions for safe handling**
- **Advice on safe handling:** No special precautions are necessary if used correctly.
- **Hygiene measures:**
Avoid contact with the skin.
Avoid contact with the eyes.
Take off immediately all contaminated clothing.
Wash hands before breaks and at the end of work.
Do not eat, drink or smoke when using this product.
- **Conditions for safe storage, including any incompatibilities**
- **Requirements to be met by storerooms and receptacles:**
Store in a cool location.
Keep only in original container.
- **Information about storage in one common storage facility:** Store away from metals.
- **Further information about storage conditions:**
Protect from heat and direct sunlight.
Store in the dark.
Protect from exposure to the light.
Protect from humidity and water.
- **Recommended storage temperature:** 20°C +/- 5°C (approx. 68°F)
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

CAS: 7761-88-8 silver nitrate

PEL (USA)	Long-term value: 0.01 mg/m ³ as Ag
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REL (USA)	Long-term value: 0.01 mg/m ³ as Ag
TLV (USA)	Long-term value: 0.01 mg/m ³ as Ag
EL (Canada)	Short-term value: 0.03 mg/m ³ Long-term value: 0.01 mg/m ³ as Ag

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Engineering measures:**
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. See item 7.
- **Personal protective equipment:**
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.
- **Breathing equipment:** Use respiratory protective device against the effects of fume/dust/aerosol.
- **Recommended filter device for short term use:** Filter ABEK
- **Protection of hands:**
Protective gloves
Preventive skin protection by use of skin-protecting agents is recommended.
After use of gloves apply skin-cleaning agents and skin cosmetics.
- **Material of gloves**
Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
- **Penetration time of glove material**
Value for the permeation: Level ≤ 1 (10 min)
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**
Tightly sealed goggles
Use protective goggles that have been tested and approved in accordance with government standards (like NIOSH).
- **Body protection:** Protective work clothing
- **Limitation and supervision of exposure into the environment:**
Do not allow product to reach sewage system or any water course.

9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **Appearance:**
- **Form / Physical state:** Solution
- **Color:** Colorless
- **Odor:** Odorless
- **Odor threshold:** Not applicable.
- **pH-value at 20°C (68°F):** 5
- **Melting point/freezing point:** Not determined.
- **Initial boiling point and boiling range:** 100°C (212°F) (CAS: 7732-18-5 water)
- **Flash point:** Not applicable.
- **Flammability (solid, gas):** The product is not combustible.
- **Auto igniting:** Not applicable.
- **Decomposition temperature:** Not determined.
- **Auto-ignition temperature:** Product is not self-igniting.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Flammability or explosive limits:**
 - Lower: Not applicable.
 - Upper: Not applicable.
- **Oxidizing properties:** none
- **Vapor Pressure:** Not determined.
- **Density at 20°C (68°F):** 1 g/cm³ (8.35 lbs/gal)
- **Relative density:** Not determined.
- **Vapor density:** Not determined.
- **Evaporation rate:** Not determined.

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· Solubility(ies)	
· Water:	Fully miscible.
· Partition coefficient (n-octanol/water):	Not applicable (mixture).
· Viscosity:	Not determined.
· Kinematic:	Not determined.
· Other information	
· Solids content:	< 5 %
· Solvent content:	
· Organic solvents:	0.0 %
· Water:	> 95 %
· Information with regard to physical hazard classes	
· Corrosive to metals	May be corrosive to metals. Information on incompatible materials can be found in Sections 7 and 10.

10 Stability and reactivity

- **Reactivity** see section "Possibility of hazardous reactions"
- **Chemical stability**
Stable at ambient temperature (room temperature).
sensitivity to light
- **Possibility of hazardous reactions**
Corrosive action on metals.
Reacts with alcohols.
- **Conditions to avoid** Strong heating (decomposition)
- **Incompatible materials:**
metals
aluminum
steel
- **Hazardous decomposition products:**
nitrous gases
In case of fire: see section 5.

*11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.

· LD/LC50 values that are relevant for classification:

CAS: 7761-88-8 silver nitrate

Oral	LD50	1173 mg/kg (rat) (RTECS)
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- **Primary irritant effect:**
- **on the skin:** Causes skin irritation.
- **on the eye:**
Causes serious eye damage.
Risk of corneal clouding.
- **Sensitization:** Based on available data, the classification criteria are not met.
- **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

- **Other information:** see section 8 / 15
- **Synergistic Products:** None

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- **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction):** The following statements refer to the mixture:
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT (specific target organ toxicity) -single exposure** Based on available data, the classification criteria are not met.
- **STOT (specific target organ toxicity) -repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

Additional toxicological information:

CAS: 7761-88-8 silver nitrate

(source: GESTIS)

Main toxic effects:

Acute: Irritant to caustic effect on mucous membranes and skin.

After ingestion of high doses: gastrointestinal complaints, disorders of the cardiovascular system and disorders of the central nervous system.

chronic: silver deposits in the tissues (argyria)

Further information:

Depending on the concentration, dust and solutions have an irritating to highly caustic effect on mucous membranes and skin. 5-50% solutions caused severe eye damage, in some cases permanent corneal opacity.

12 Ecological information

Toxicity

Aquatic toxicity:

CAS: 7761-88-8 silver nitrate

LC50 0.00022 mg/l/48h (Daphnia magna) (OECD 202)
(Merck, Ag-Ion)EC10 0.0021 mg/l (Daphnia magna) (21)
(Registrant, ECHA)NOEC 0.00037 mg/l (fathhead minnow) (OECD 210)
(Merck)LC50 0.0012 mg/l/96h (fathhead minnow) (US-EPA)
(Merck, Ag-Ion)

Persistence and degradability

Other information:

Mixture of inorganic compounds.

Methods for the determination of biodegradability are not applicable to inorganic substances.

Bioaccumulative potential

No further relevant information available.

Mobility in soil

No further relevant information available.

Other adverse effects

Avoid transfer into the environment.

13 Disposal considerations

Waste treatment methods

Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Hand over to hazardous waste disposers.

Uncleaned packagings:

Recommendation:

Disposal must be made according to official regulations.

Recommended cleansing agent:

Water, if necessary with cleansing agents.

14 Transport information

UN-Number

DOT, IMDG, IATA

UN1760

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<ul style="list-style-type: none"> · UN proper shipping name · DOT · IMDG · IATA 	<p>Corrosive liquids, n.o.s. CORROSIVE LIQUID, N.O.S. (SILVER NITRATE), MARINE POLLUTANT CORROSIVE LIQUID, N.O.S. (SILVER NITRATE)</p>
<ul style="list-style-type: none"> · Transport hazard class(es) · DOT  <ul style="list-style-type: none"> · Class · Label 	<p>8 Corrosive substances 8</p>
<ul style="list-style-type: none"> · IMDG  <ul style="list-style-type: none"> · Class · Label 	<p>8 Corrosive substances 8</p>
<ul style="list-style-type: none"> · IATA  <ul style="list-style-type: none"> · Class · Label 	<p>8 Corrosive substances 8</p>
<ul style="list-style-type: none"> · Packing group · DOT, IMDG, IATA 	<p>III</p>
<ul style="list-style-type: none"> · Environmental hazards: · Marine pollutant: 	<p>Symbol (fish and tree)</p>
<ul style="list-style-type: none"> · Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Stowage Category · Stowage Code 	<p>Warning: Corrosive substances 80 F-A,S-B A SW2 Clear of living quarters.</p>
<ul style="list-style-type: none"> · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code 	<p>Not applicable.</p>
<ul style="list-style-type: none"> · Transport/Additional information: · DOT · Quantity limitations 	<p>On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L</p>
<ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) 	<p>5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml</p>

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*15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

· Section 355 (Extremely hazardous substances):
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None of the ingredients is listed.

· Section 313 (Specific toxic chemical listings):
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CAS: 7761-88-8 silver nitrate

· TSCA (Toxic Substances Control Act):

All components have the value ACTIVE.

· Hazardous Air Pollutants

None of the ingredients is listed.

· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:
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None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:
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None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· New Jersey Right-to-Know List:

CAS: 7761-88-8 silver nitrate

· New Jersey Special Hazardous Substance List:

CAS: 7761-88-8 silver nitrate	CO
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· Pennsylvania Right-to-Know List:

CAS: 7761-88-8 silver nitrate

· Pennsylvania Special Hazardous Substance List:

CAS: 7761-88-8 silver nitrate	E
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· EPA (Environmental Protection Agency)
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None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

- **Information about limitation of use:** Not required.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant phrases**

H272 May intensify fire; oxidizer.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

- **Version number / date of revision:** 6 / 07/30/2024

- **Abbreviations and acronyms:**

STOT: specific target organ toxicity
SE: single exposure
RE: repeated exposure
EC50: half maximal effective concentration
IC50: half maximal inhibitory concentration
NOEL or NOEC: No Observed Effect Level or Concentration
ACGIH® - American Conference of Governmental Industrial Hygienists
•A1 - Confirmed human carcinogen
•A2 - Suspected human carcinogen

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- A3 - Confirmed animal carcinogen with unknown relevance to humans
- A4 - Not classifiable as a human carcinogen
- A5 - Not suspected as a human carcinogen
- IARC - International Agency for Research on Cancer
- Group 1 - Carcinogenic to humans
- Group 2A - Probably carcinogenic to humans
- Group 2B - Possibly carcinogenic to humans
- Group 3 - Not classifiable as to carcinogenicity to humans
- Group 4 - Probably not carcinogenic to humans
- NTP - National Toxicology Program, U.S. Department of Health and Human Services
- Group K - Known to be Human Carcinogens
- Group R - Reasonably Anticipated to be Human Carcinogens
- IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation
- IATA: International Air Transport Association
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- NIOSH: National Institute for Occupational Safety
- OSHA: Occupational Safety & Health
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit
- REL: Recommended Exposure Limit
- Oxidizing Solids 2: Oxidizing solids – Category 2
- Corrosive to Metals 1: Corrosive to metals – Category 1
- Acute Toxicity - Oral 4: Acute toxicity – Category 4
- Skin Corrosion 1B: Skin corrosion/irritation – Category 1B
- Skin Irritation 2: Skin corrosion/irritation – Category 2
- Eye Damage 1: Serious eye damage/eye irritation – Category 1
- Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
- Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

• Sources

Data arise from safety data sheets, reference works and literature.
 RTECS (Registry of Toxic Effects of Chemical Substances)
 ECHA: European CHemicals Agency <http://echa.europa.eu>
 GESTIS- Stoffdatenbank (Substance Database, Germany)

• * Data compared to the previous version altered.

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