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

Printing date 04/18/2024 Reviewed on 04/18/2024

1 Identification

· **Product identifier**

· **Trade name: Chloride**

· **Catalogue number:** 00515131, 515130BT, 4515130BT, 515131BT, 4515131BT, 00515139BT, 502461, 00512461, 00502461

· **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**


GHS08 Health hazard

Sensitization - Respiratory 1	H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Germ Cell Mutagenicity 1B	H340 May cause genetic defects.
Carcinogenicity 1B	H350 May cause cancer.
Toxic to Reproduction 1B	H360 May damage fertility or the unborn child.


GHS05 Corrosion

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.
Sensitization - Skin 1	H317 May cause an allergic skin reaction.

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


GHS05 GHS08 GHS09

· **Signal word** Danger

(Contd. on page 2)

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

Printing date 04/18/2024 Reviewed on 04/18/2024

Trade name: Chloride

(Contd. of page 1)

· **Hazard-determining components of labeling:**
boric acid
potassium chromate
silver nitrate
potassium dichromate
· **Hazard statements**
H315 Causes skin irritation.
H318 Causes serious eye damage.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.
H340 May cause genetic defects.
H350 May cause cancer.
H360 May damage fertility or the unborn child.
H410 Very toxic to aquatic life with long lasting effects.
· **Precautionary statements**
P280 Wear protective gloves/protective clothing/eye protection.
P201 Obtain special instructions before use.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P302+P352 If on skin: Wash with plenty of water.
P308+P311 IF exposed or concerned: Call a poison center/doctor.
P405 Store locked up.

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

*
3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of organic and inorganic compounds
· **Composition and Information on Ingredients:**
The percent content of the chromium compound mentioned below refers to the amount of the chromate ions dissolved in water.
Percent ranges are used due to the confidential product information.

CAS: 10043-35-3 EINECS: 233-139-2 Index number: 005-007-00-2 RTECS: ED 4550000	boric acid Toxic to Reproduction 1B, H360	50–60%
CAS: 9004-34-6 EINECS: 232-674-9 RTECS: FJ5691460	cellulose	20–30%
CAS: 7789-00-6 EINECS: 232-140-5 Index number: 024-006-00-8 RTECS: GB 2940000	potassium chromate Germ Cell Mutagenicity 1B, H340; Carcinogenicity 1A, H350; Aquatic Acute 1, H400 (M=10); Aquatic Chronic 1, H410 (M=10); Skin Irritation 2, H315; Eye Irritation 2A, H319; Sensitization - Skin 1, H317; Specific Target Organ Toxicity - Single Exposure 3, H335	10–<20%
CAS: 7761-88-8 EINECS: 231-853-9 Index number: 047-001-00-2	silver nitrate 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	2.5–<5%
CAS: 7778-50-9 EINECS: 231-906-6 Index number: 024-002-00-6 RTECS: HX 7680000	potassium dichromate Oxidizing Solids 2, H272; Acute Toxicity - Oral 3, H301; Acute Toxicity - Inhalation 2, H330; Sensitization - Respiratory 1, H334; Germ Cell Mutagenicity 1B, H340; Carcinogenicity 1A, H350; Toxic to Reproduction 1B, H360; Specific Target Organ Toxicity - Repeated Exposure 1, H372; Skin Corrosion 1B, H314; Aquatic Acute 1, H400 (M=1); Aquatic Chronic 1, H410 (M=1); Acute Toxicity - Dermal 4, H312; Sensitization - Skin 1, H317	0.25–<1%

· **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:**
Personal protection for the First Aider.
Immediately remove any clothing soiled by the product.

(Contd. on page 3)

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

Printing date 04/18/2024 Reviewed on 04/18/2024

Trade name: Chloride

(Contd. of page 2)

· **After inhalation:**
Supply fresh air or oxygen.
Call a doctor immediately.
· **After skin contact:**
If symptoms persist consult doctor.
Clean contaminated small wounds very thoroughly immediately.
Seek medical treatment.
· **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.
Do not induce vomiting; immediately call for medical help.
· **Most important symptoms and effects, both acute and delayed**
burns
resorption
allergic reactions
after inhalation:
mucosal irritations, cough, breathing difficulty
Irritation and corrosion
after swallowing:
sickness
vomiting
diarrhoea
cramps
cardiovascular disorders
dizziness
after absorption of large amounts:
fatigue
CNS disorders
ataxia (impaired locomotor coordination)
drop in temperature
methaemoglobinaemia
unconsciousness
· **Danger:**
risk of airways sensitization
risk of skin sensitization
Danger of circulatory collapse.
Risk of corneal clouding.
· **Indication of any immediate medical attention and special treatment needed:**
If swallowed or in case of vomiting, danger of entering the lungs.
Later observation for pneumonia and pulmonary edema.

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:
Nitrogen oxides (NOx)
chromium oxides
Potassium oxide
Carbon monoxide (CO) and carbon dioxide (CO_2)
· **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.

(Contd. on page 4)

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

Printing date 04/18/2024 Reviewed on 04/18/2024

Trade name: Chloride

(Contd. of page 3)

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.
Avoid substance contact.
Ensure adequate ventilation
Use respiratory protective device against the effects of fume/dust/aerosol.
· **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.
Pick up mechanically.
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:** Provide suction extractors if dust is formed.
· **Hygiene measures:**
Do not get in eyes, on skin, or on clothing.
Take off immediately all contaminated clothing.
Store protective clothing separately.
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.
· **Information about storage in one common storage facility:** Store away from flammable substances.
· **Further information about storage conditions:**
Store locked up or with access restricted to technical experts or their assistants.
Ensure that persons do not handle until all safety precautions have been read and understood.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
Store in the dark.
Protect from exposure to the light.
Protect from humidity and water.
This product is hygroscopic.
· **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: 10043-35-3 boric acid	
TLV (USA)	Short-term value: 6* mg/m³ Long-term value: 2* mg/m³ *as inhalable fraction, A4
EL (Canada)	Short-term value: 6 mg/m³ Long-term value: 2 mg/m³
EV (Canada)	Short-term value: 6 mg/m³ Long-term value: 2 mg/m³ inorganic, inhalable

(Contd. on page 5)

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

Printing date 04/18/2024 Reviewed on 04/18/2024

Trade name: Chloride

(Contd. of page 4)

CAS: 9004-34-6 cellulose	
PEL (USA)	Long-term value: 15* 5** mg/m³ *total dust **respirable fraction
REL (USA)	Long-term value: 10* 5** mg/m³ *total dust **respirable fraction
TLV (USA)	Long-term value: 10 mg/m³
EL (Canada)	Long-term value: 10* 3** mg/m³ *total dust, **respirable fraction
EV (Canada)	Long-term value: 10 mg/m³ paper fibre, total dust
CAS: 7789-00-6 potassium chromate	
PEL (USA)	Long-term value: 0.005* mg/m³ Ceiling limit value: 0.1** mg/m³ *as Cr(VI) **as CrO3; see 29 CFR 1910.1026
REL (USA)	Long-term value: 0.0002 mg/m³ as Cr; See Pocket Guide Apps. A and C
TLV (USA)	Short-term value: 0.0005 mg/m³ Long-term value: 0.0002 mg/m³ as Cr(VI); A1;inhalable, Skin;BEI, DSEN, RSEN
EL (Canada)	Long-term value: 0.025 mg/m³ Ceiling limit value: 0.1 mg/m³ as Cr; ACGIH A1, IARC 1; Skin; S(D), S(R)
CAS: 7761-88-8 silver nitrate	
PEL (USA)	Long-term value: 0.01 mg/m³ as Ag
REL (USA)	Long-term value: 0.01 mg/m³ as Ag
TLV (USA)	Long-term value: 0.01 mg/m³ as Ag
EL (Canada)	Short-term value: 0.03 mg/m³ Long-term value: 0.01 mg/m³ as Ag
CAS: 7778-50-9 potassium dichromate	
PEL (USA)	Long-term value: 0.005* mg/m³ Ceiling limit value: 0.1** mg/m³ *as Cr(VI) **as CrO3; see 29 CFR 1910.1026
REL (USA)	Long-term value: 0.0002 mg/m³ as Cr; See Pocket Guide Apps. A and C
TLV (USA)	Short-term value: 0.0005 mg/m³ Long-term value: 0.0002 mg/m³ as Cr(VI); A1;inhalable, Skin;BEI, DSEN, RSEN
EL (Canada)	Long-term value: 0.025 mg/m³ Ceiling limit value: 0.1 mg/m³ as Cr; ACGIH A1, IARC 1; Skin; S(D), S(R)

· **Ingredients with biological limit values:**

CAS: 7789-00-6 potassium chromate	
BEI (USA)	25 µg/L Medium: urine Time: end of shift at end of workweek Parameter: Total chromium (fume) 10 µg/L Medium: urine Time: increase during shift Parameter: Total chromium (fume)

(Contd. on page 6)

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

Printing date 04/18/2024 Reviewed on 04/18/2024

Trade name: Chloride

(Contd. of page 5)

CAS: 7778-50-9 potassium dichromate	
BEI (USA)	25 µg/L Medium: urine Time: end of shift at end of workweek Parameter: Total chromium (fume) 10 µg/L Medium: urine Time: increase during shift Parameter: Total chromium (fume)

· **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:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Recommended filter device for short term use:** Filter P3
· **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:**	Tablets
· **Color:**	Yellowish
· **Odor:**	Odorless
· **Odor threshold:**	Not applicable.
· **pH-value (1.8 g/l) at 20°C (68°F):**	7.1
· **Melting point/freezing point:**	Not determined.
· **Initial boiling point and boiling range:**	Not determined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gas):**	The product is not combustible.
· **Auto igniting:**	Not applicable.
· **Decomposition temperature:**	> 171°C (> 339.8°F) (CAS 10043-35-3)
· **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:**	Oxidizing potential CAS 7761-88-8: is classified as oxidizing.

(Contd. on page 7)

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

Printing date 04/18/2024 Reviewed on 04/18/2024

Trade name: Chloride

(Contd. of page 6)

· **Vapor Pressure:**	Not applicable.
· **Density at 20°C (68°F):**	1.84 g/cm³ (15.35 lbs/gal)
· **Relative density:**	Not determined.
· **Vapor density:**	Not applicable.
· **Evaporation rate:**	Not applicable.
· **Solubility(ies)**	
· **Water:**	Partially insoluble.
· **Partition coefficient (n-octanol/water):**	Not applicable (mixture).
· **Viscosity:**	Not applicable.
· **Kinematic:**	Not applicable (solid).
· **Other information**	
· **Solids content:**	100 %

10 Stability and reactivity

· **Reactivity** see section "Possibility of hazardous reactions"
· **Chemical stability** Stable at ambient temperature (room temperature).
· **Possibility of hazardous reactions**
Reacts with alcohols.
Reacts with strong alkalis and oxidizing agents.
Reacts with reducing agents.
If moisture is present, boric acid can be corrosive to iron.
· **Conditions to avoid** To avoid thermal decomposition do not overheat.
· **Incompatible materials:**
metals
aluminum
steel
organic substances
combustible materials
· **Hazardous decomposition products:** see section 5

* 11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:** Based on available data, the classification criteria are not met.

· **Acute toxicity estimate ($ATE_{(MIX)}$) - Calculation method:**		
Oral	GHS $ATE_{(MIX)}$	3357 mg/kg (.)
Inhalative	GHS $ATE_{(MIX)}$	20 mg/l/4h (dust)

· **LD/LC50 values that are relevant for classification:**		
CAS: 10043-35-3 boric acid		
Oral	LD50	2660 mg/kg (rat) (OECD 401) (GESTIS, ECHA registrant)
Dermal	LD50.	>2000 mg/kg (rat) (ECHA, registrant: no deaths occurred.)
	LD_0	1500 mg/kg (child) (MERCK)
	NOAEL	9.6 mg/kg (rat) (NTP)
CAS: 9004-34-6 cellulose		
Oral	LD50.	>5000 mg/kg (rat)
Dermal	LD50.	>2000 mg/kg (rabbit) (RTECS, limit test)
Inhalative	LC50/4h	>5.8 mg/l /4h (rat)
CAS: 7789-00-6 potassium chromate		
Oral	LD50.	180 mg/kg (mouse)

(Contd. on page 8)

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

Printing date 04/18/2024 Reviewed on 04/18/2024

Trade name: Chloride

(Contd. of page 7)

CAS: 7761-88-8 silver nitrate		
Oral	LD50	1173 mg/kg (rat) (RTECS)
CAS: 7778-50-9 potassium dichromate		
Oral	LD50	90.5 mg/kg (rat) (OECD 401) (ECHA, registrant: LD50 = 90.5 mg/kg female to 168.0 mg/kg male)
	LDLo	26 mg/kg (child)
		143 mg/kg (man)
Dermal	LD50	1170 mg/kg (rat) (IUCLID)
Inhalative	LC50/4h	0.094 mg/l (rat) (OECD 403, Aerosol)
	LD50 IPR	28 mg/kg (rat)

· **Primary irritant effect:**

· **on the skin:** Causes skin irritation.

· **on the eye:**
Causes serious eye damage.
Risk of corneal clouding.

· **Information on components:**		
CAS: 10043-35-3 boric acid		
Irritation of skin	OECD 404	(rabbit: no irritation) (Registrant, ECHA)
Irritation of eyes	OECD 492	(rabbit: slight irritation) (IUCLID)
CAS: 9004-34-6 cellulose		
Irritation of skin	OECD 404	(rabbit: no irritation)
Irritation of eyes	OECD 492	(rabbit: no irritation)
CAS: 7778-50-9 potassium dichromate		
Irritation of skin	OECD 404	(rabbit: irritation)

· **Sensitization:**
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.

· **Information on components:**		
CAS: 10043-35-3 boric acid		
Sensitization	OECD 406	(guinea pig: negative)
CAS: 9004-34-6 cellulose		
Sensitization	OECD 406	(guinea pig: negative)
CAS: 7778-50-9 potassium dichromate		
Sensitization	Patch test (human)	(positive) (IUCLID)

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
CAS: 7789-00-6	potassium chromate	1
CAS: 7778-50-9	potassium dichromate	1

· **NTP (National Toxicology Program)**		
CAS: 7789-00-6	potassium chromate	K
CAS: 7778-50-9	potassium dichromate	K

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

· **Other information:** see section 8 / 15

· **Synergistic Products:** None

· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction):**
The following statements refer to the mixture:
Germ Cell Mutagenicity 1B, Carcinogenicity 1B, Toxic to Reproduction 1B

(Contd. on page 9)

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

Printing date 04/18/2024 Reviewed on 04/18/2024

Trade name: Chloride

(Contd. of page 8)

· **Germ cell mutagenicity** May cause genetic defects.
· **Carcinogenicity** May cause cancer.
· **Reproductive toxicity** May damage fertility or the unborn child.

· **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.

· **Information on components:**
CAS 10043-35-3: evaluation for carcinogenicity: negative in animals (NTP)
OECD 414: Teratogenicity testing
OECD 473: Mutagenicity testing
OECD 471, 474, 476, 487: Germ cell mutagenicity testing

CAS: 10043-35-3 boric acid	
OECD 471	(negative) (Bacterial Reverse Mutation Test - Ames test)
OECD 476	(negative) (In Vitro Mammalian Cell Gene Mutation Test) (mouse lymphomea test)
OECD 414	(negative) (oral, rat) (ECHA, registrant: no evidence of developmental toxicity up to 55 mg/kg bw. At 76 mg/kg bw there was reduced fetal bodyweight, short and wavy ribs, and these effects disappeared during the postnatal period.)
OECD 474	(negative) (in vivo, mice)

· **Additional toxicological information:**
CAS 7789-00-6 Potassium chromate / CAS 7778-50-9 Potassium dichromate
Main toxic effects [GESTIS]:
acute: irritation/damage to mucous membranes and skin, sensitizing effect (skin/respiratory tract). Damage to kidneys, blood and liver.
chronic: irritation/damage to the skin and mucous membranes, especially in the nose and throat. After penetration of the substance into wounds, these tend to form ulcers.
Allergic skin and respiratory diseases.
resorptive effects: primarily damage to the kidneys up to acute kidney failure; in addition, hemorrhagic diathesis, thrombocytopenia, anemia, possibly methemoglobinemia;
rarely: rapid onset of CNS damage or hepatitis as a late consequence; also promoting respiratory infections.
CAS 10043-35-3: Absorption through gastro-intestinal tract, mucous membranes
Boric acid / Borate may cause developmental changes based on published data, at doses many times in excess of those that could occur through inhalation of dust in occupational settings.

CAS: 10043-35-3 boric acid
. (source: GESTIS) Main toxic effects: Acute: Slightly irritating to the eyes and skin; gastrointestinal disturbances, CNS-effects and (later) skin damage after massive poisoning Chronic: Irritation to the mucous membranes following inhalative exposure, effects to the gastrointestinal tract and CNS Further Information (Merck): "Toxicity reported for borates in humans: ingestion or absorption may cause nausea, vomiting, diarrhea, abdominal cramps, anderythematous lesions on the skin and mucous membranes. Other symptoms include: circulatory collapse, tachycardia, cyanosis, delirium, convulsions, and coma. Death has been reported to occur in infants from less than 5 grams and in adults from 5 to 20 grams." "Liver - Irregularities - Based on Human Evidence"
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.

· **Other information**
This substance / mixture should be handled with particular care.

(Contd. on page 10)

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

(Contd. of page 9)

Other dangerous properties can not be excluded.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity:**	
CAS: 10043-35-3 boric acid	
EC50	133 mg/l/48h (Daphnia magna) (ECOTOX)
LC50	50–100 mg/l/96h (rainbow trout) (ECOTOX)
CAS: 7789-00-6 potassium chromate	
EC50	0.02 mg/l/48h (Daphnia magna) (Ecotox)
	0.18 mg/l/48h (Daphnia pulex)
LC50	39.8 mg/l/96h (fathhead minnow) (ECOTOX)
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)
CAS: 7778-50-9 potassium dichromate	
EC50	0.62 mg/l/48h (Daphnia magna) (OECD 202) (Merck)
NOEC	0.016–0.064 mg/l (Daphnia magna) (7d)
	6 mg/l (fathhead minnow) (7d)
IC50	0.16–0.59 mg/l/96 h (Chlorella vulgaris) (IUCLID)
EC50	0.31 mg/l/72h (Desmodesmus subspicatus)
LC50	58.5 mg/l/96h (byr)
	0.131 mg/l/96h (bluegill)
	160 mg/l/96h (guppy)
	26.13 mg/l/96h (fathhead minnow) (Merck/IUCLID)

· **Bacterial toxicity:**	
CAS: 7778-50-9 potassium dichromate	
EC50	58 mg/l (Photobacterium phosphoreum) (30 min; Microtox-Test)

· **Persistence and degradability** No further relevant information available.

· **Bioaccumulative potential**
BCF = Bioconcentration factor
Pow = n-octanol/wasser partition coefficient
log Pow < 1 = Does not accumulate in organisms.

CAS: 10043-35-3 boric acid	
log Pow	-1.09 (.) (OECD 107, 22°C) (Merck)

· **Mobility in soil** No further relevant information available.

· **Other adverse effects** Avoid transfer into the environment.

(Contd. on page 11)

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

Printing date 04/18/2024 Reviewed on 04/18/2024

Trade name: Chloride

(Contd. of page 10)

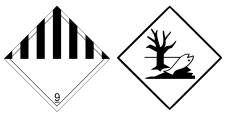
13 Disposal considerations

· **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**	none
· **IMDG, IATA**	UN3077
· **UN proper shipping name**	
· **DOT**	none
· **IMDG**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (SILVER NITRATE, potassium chromate), MARINE POLLUTANT
· **IATA**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (SILVER NITRATE, potassium chromate)
· **Transport hazard class(es)**	
· **DOT**	
· **Class**	none
· **IMDG, IATA**	



· **Class**	9 Miscellaneous dangerous substances and articles
· **Label**	9
· **Packing group**	
· **DOT**	none
· **IMDG, IATA**	III
· **Environmental hazards:**	Product contains environmentally hazardous substances: silver nitrate, potassium chromate
· **Marine pollutant:**	Symbol (fish and tree)
· **Special marking (IATA):**	Symbol (fish and tree)
· **Special precautions for user**	Warning: Miscellaneous dangerous substances and articles
· **Hazard identification number (Kemler code):**	90
· **EMS Number:**	F-A,S-F
· **Segregation groups**	(SGG7) Heavy metals and their salts (including their organometallic compounds)
· **Stowage Category**	A
· **Stowage Code**	SW23 When transported in BK3 bulk container, see 7.6.2.12 and 7.7.3.9.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **IMDG**	
· **Limited quantities (LQ)**	5 kg

(Contd. on page 12)

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

Printing date 04/18/2024 Reviewed on 04/18/2024

Trade name: Chloride

(Contd. of page 11)

· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g

* 15 Regulatory information

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

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

· **Section 313 (Specific toxic chemical listings):**
This mixture contains Chromic acid, dipotassium salt [listed as **undefined** - Cr(VI)] which is subject to the reporting requirements of Section 313 SARA Title III and 40 CFR Part 372.

CAS: 7789-00-6	potassium chromate
CAS: 7761-88-8	silver nitrate
CAS: 7778-50-9	potassium dichromate

· **TSCA (Toxic Substances Control Act):**
All components have the value ACTIVE.

· **Hazardous Air Pollutants**	
CAS: 7789-00-6	potassium chromate
CAS: 7778-50-9	potassium dichromate

· **Proposition 65**
· **Chemicals known to cause cancer:**
Chromium (hexavalent) compounds are listed in California Proposition 65 as carcinogens.

CAS: 7789-00-6	potassium chromate
CAS: 7778-50-9	potassium dichromate

· **Chemicals known to cause reproductive toxicity for females:**
Chromium (hexavalent) compounds are listed in California Proposition 65 as toxic to reproduction for females.

CAS: 7789-00-6	potassium chromate
CAS: 7778-50-9	potassium dichromate

· **Chemicals known to cause reproductive toxicity for males:**
Chromium (hexavalent) compounds are listed in California Proposition 65 as toxic to reproduction for males.

CAS: 7789-00-6	potassium chromate
CAS: 7778-50-9	potassium dichromate

· **Chemicals known to cause developmental toxicity:**
Chromium (hexavalent) compounds are listed in California Proposition 65 as toxic to developement.

CAS: 7789-00-6	potassium chromate
CAS: 7778-50-9	potassium dichromate

· **New Jersey Right-to-Know List:**	
CAS: 9004-34-6	cellulose
CAS: 7789-00-6	potassium chromate
CAS: 7761-88-8	silver nitrate
CAS: 7778-50-9	potassium dichromate

· **New Jersey Special Hazardous Substance List:**		
CAS: 7789-00-6	potassium chromate	CA, MU
CAS: 7761-88-8	silver nitrate	CO
CAS: 7778-50-9	potassium dichromate	CA, MU

· **Pennsylvania Right-to-Know List:**	
CAS: 9004-34-6	cellulose
CAS: 7789-00-6	potassium chromate
CAS: 7761-88-8	silver nitrate
CAS: 7778-50-9	potassium dichromate

(Contd. on page 13)

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

Printing date 04/18/2024 Reviewed on 04/18/2024

Trade name: Chloride

(Contd. of page 12)

· **Pennsylvania Special Hazardous Substance List:**		
CAS: 7789-00-6	potassium chromate	E
CAS: 7761-88-8	silver nitrate	E
CAS: 7778-50-9	potassium dichromate	E

· **EPA (Environmental Protection Agency)**		
CAS: 10043-35-3	boric acid	I (oral)
CAS: 7789-00-6	potassium chromate	A(inh), D(oral), K/L(inh), CBD(oral)
CAS: 7778-50-9	potassium dichromate	A(inh), D(oral), K/L(inh), CBD(oral)

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
Chromium, hexavalent [Cr(VI)]

CAS: 7789-00-6	potassium chromate
CAS: 7778-50-9	potassium dichromate

· **Information about limitation of use:**
Observe national regulations where applicable:
Employment restrictions concerning young persons must be observed.
Employment restrictions concerning pregnant and lactating women must be observed.

· **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.
H301 Toxic if swallowed.
H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H330 Fatal if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H340 May cause genetic defects.
H350 May cause cancer.
H360 May damage fertility or the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

· **Recommended restriction of use:** professional/industrial use only

· **Version number / date of revision:** 76 / 04/18/2024

· **Abbreviations and acronyms:**
OECD: Organisation for Economic Co-operation and Development
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
•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

(Contd. on page 14)

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

Printing date 04/18/2024 Reviewed on 04/18/2024

Trade name: Chloride

(Contd. of page 13)

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
BEI: Biological Exposure Limit
Oxidizing Solids 2: Oxidizing solids – Category 2
Acute Toxicity - Oral 3: Acute toxicity – Category 3
Acute Toxicity - Oral 4: Acute toxicity – Category 4
Acute Toxicity - Inhalation 2: Acute toxicity – Category 2
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
Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A
Sensitization - Respiratory 1: Respiratory sensitisation – Category 1
Sensitization - Skin 1: Skin sensitisation – Category 1
Germ Cell Mutagenicity 1B: Germ cell mutagenicity – Category 1B
Carcinogenicity 1A: Carcinogenicity – Category 1A
Carcinogenicity 1B: Carcinogenicity – Category 1B
Toxic to Reproduction 1B: Reproductive toxicity – Category 1B
Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3
Specific Target Organ Toxicity - Repeated Exposure 1: Specific target organ toxicity (repeated exposure) – 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.
ECHA: European CHemicals Agency http://echa.europa.eu
ECOTOX Database
GESTIS- Stoffdatenbank (Substance Database, Germany)
IUCLID (International Uniform Chemical Information Database)
RTECS (Registry of Toxic Effects of Chemical Substances)
NTP (National Toxicology Program)

· *** Data compared to the previous version altered.**