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

Printing date 02/14/2019 Reviewed on 02/14/2019

1 Identification

· **Product identifier**

· **Trade name: Total Chlorine Buffer Solution**

· **Catalogue number:** 540223, 424491, 540226

· **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

Met. Corr.1	H290	May be corrosive to metals.
Skin Corr. 1B	H314	Causes severe skin burns and eye damage.
Eye Dam. 1	H318	Causes serious eye damage.

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


GHS05

· **Signal word** Danger
· **Hazard statements**
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
· **Precautionary statements**

P260	Do not breathe mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection.
P301+P330+P331	If swallowed: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
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 poison center/doctor.

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

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** aqueous solution

(Contd. on page 2)

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

Printing date 02/14/2019 Reviewed on 02/14/2019

Trade name: Total Chlorine Buffer Solution

(Contd. of page 1)

· **Composition and Information on Ingredients:**
Percent ranges are used due to the confidential product information.

CAS: 7681-11-0 EINECS: 231-659-4 RTECS: TT2975000	potassium iodide		2.5–5%
CAS: 1310-73-2 EINECS: 215-185-5 Index number: 011-002-00-6 RTECS: WB4900000	sodium hydroxide	Met. Corr.1, H290	2.5–5%

· **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 wash with polyethylene glycol 400.
Immediately rinse with plenty of water.
Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.
· **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
after inhalation:
coughing
mucous membrane irritation
breathing difficulty
after swallowing:
strong caustic effect
vomiting
weakness
abdominal pain
after swallowing of large amounts:
disorder of electrolyte balance
· **Danger:** Danger of gastric perforation.
· **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.
Hydrogen iodide (HI)
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 3)

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

Printing date 02/14/2019 Reviewed on 02/14/2019

Trade name: Total Chlorine Buffer Solution

(Contd. of page 2)

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 fumes/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.
· **Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
neutralize with diluted sulphuric acid
Absorb with liquid-binding material (sand, diatomite, universal binders).
Dispose contaminated material as waste according to item 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:** Prevent formation of aerosols.
· **Hygiene measures:**
Do not inhale gases / fumes / aerosols.
Do not get in eyes, on skin, or on clothing.
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**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Store away from metals.
· **Further information about storage conditions:**
Protect from heat and direct sunlight.
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: 7681-11-0 potassium iodide	
TLV (USA)	Long-term value: NIC-0.015** mg/m³, (0.01*) ppm NIC-Skin; *inhalable fraction & vapor **inhal.;
CAS: 1310-73-2 sodium hydroxide	
PEL (USA)	Long-term value: 2 mg/m³
REL (USA)	Ceiling limit value: 2 mg/m³
TLV (USA)	Ceiling limit value: 2 mg/m³
EL (Canada)	Ceiling limit value: 2 mg/m³
EV (Canada)	Ceiling limit value: 2 mg/m³

· **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.

(Contd. on page 4)

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

(Contd. of page 3)

See item 7.

· **Personal protective equipment:**
· **Breathing equipment:** Use respiratory protective device against the effects of fumes/dust/aerosol.
· **Recommended filter device for short term use:** Filter P2
· **Protection of hands:**
Alkaline resistant 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
· **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:	Fluid
Color:	Colorless
· **Odor:**	Odorless
· **Odor threshold:**	Not applicable.
· **pH-value at 20°C (68°F):**	>13
· **Melting point/freezing point:**	Not determined.
· **Initial boiling point and boiling range:**	Not determined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gas):**	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):**	1.24 g/cm³ (10.35 lbs/gal)
· **Relative density:**	Not determined.
· **Vapor density:**	Not determined.
· **Evaporation rate:**	Not determined.
· **Solubility(ies)**	
Water:	Fully miscible.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	Not determined.
· **Solvent content:**	
Organic solvents:	0.0 %
Water:	> 60 %
Solids content:	< 40 %

(Contd. on page 5)

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

Printing date 02/14/2019 Reviewed on 02/14/2019

Trade name: Total Chlorine Buffer Solution

(Contd. of page 4)

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

10 Stability and reactivity

· **Reactivity** see section "Possibility of hazardous reactions"
· **Chemical stability** Stable at ambient temperature (room temperature).
· **Possibility of hazardous reactions**
Corrosive action on metals.
Reacts with metals forming hydrogen (Danger of explosion!)
Forms hydrogen in aqueous solution with metals (Danger of explosion!).
Corrodes aluminium and zinc.
Reacts with oxidizing agents.
Reacts with ammonia (NH_3).
Exothermic reaction with acids.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:**
metals
light metals
aluminum
zinc
organic substances
· **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.

· **LD/LC50 values that are relevant for classification:**		
CAS: 7681-11-0 potassium iodide		
Oral	LD50	2779 mg/kg (rat) (MERCK)
CAS: 1310-73-2 sodium hydroxide		
Oral	LDLo	500 mg/kg (rabbit) (IUCLID)

· **Primary irritant effect:**
· **on the skin:** Causes severe skin burns.
· **on the eye:**
Causes serious eye damage.
Risk of blindness!

· **Sensitization:** Based on available data, the classification criteria are not met.
· **Information on components:**
The following applies to iodides in general: Sensitation possible at predisposed persons.

CAS: 1310-73-2 sodium hydroxide		
Sensitization	Patch test (human)	(negative)

· **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

· **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.

(Contd. on page 6)

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

Printing date 02/14/2019 Reviewed on 02/14/2019

Trade name: Total Chlorine Buffer Solution

(Contd. of page 5)

· **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.

· **Information on components:**	
CAS: 7681-11-0 potassium iodide	
OECD 471	(negative) (Bacterial Reverse Mutation Test - Ames test)

· **Additional toxicological information:**
Iodide chronic: hypothyroidism
Iodine salts can cause deformity, illness, and death of a fetus.
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

* 12 Ecological information

· **Toxicity**

· **Aquatic toxicity:**	
CAS: 7681-11-0 potassium iodide	
EC50	2.7 mg/l/24h (Daphnia magna)
LC50	8960 mg/l/96h (rainbow trout) (ECOTOX)
CAS: 1310-73-2 sodium hydroxide	
LC50	40.4 mg/l/48h (Ceriodaphnia sp.) (ECHA)

· **Bacterial toxicity:**	
CAS: 1310-73-2 sodium hydroxide	
EC50	22 mg/l (Photobacterium phosphoreum) (15 min)

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

· **Bioaccumulative potential**	
CAS: 7681-11-0 potassium iodide	
log Pow	0.04 (.) (MERCK)

· **Mobility in soil** No further relevant information available.
· **Other adverse effects**
Forms corrosive mixtures with water even if diluted.
Harmful effect due to pH shift.
Neutralization possible in waste water treatment plants.
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**	UN1824

(Contd. on page 7)

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

Printing date 02/14/2019 Reviewed on 02/14/2019

Trade name: Total Chlorine Buffer Solution

(Contd. of page 6)

· **UN proper shipping name**	
· **DOT**	Sodium hydroxide solution mixture
· **IMDG, IATA**	SODIUM HYDROXIDE SOLUTION mixture
· **Transport hazard class(es)**	
· **DOT, IMDG, IATA**	

· **Class**	8 Corrosive substances
· **Label**	8
· **Packing group**	
· **DOT, IMDG, IATA**	III
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Warning: Corrosive substances
· **Danger code (Kemler):**	80
· **EMS Number:**	F-A,S-B
· **Segregation groups**	Alkalis
· **Stowage Category**	A
· **Segregation Code**	SG35 Stow "separated from" acids.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· **IMDG**	
· **Limited quantities (LQ)**	5L
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

* 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):**
None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

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

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

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

(Contd. on page 8)

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

Printing date 02/14/2019 Reviewed on 02/14/2019

Trade name: Total Chlorine Buffer Solution

(Contd. of page 7)

· **New Jersey Right-to-Know List:**

CAS: 1310-73-2	sodium hydroxide	

· **New Jersey Special Hazardous Substance List:**

CAS: 1310-73-2	sodium hydroxide	CO, R1

· **Pennsylvania Right-to-Know List:**

CAS: 1310-73-2	sodium hydroxide	

· **Pennsylvania Special Hazardous Substance List:**

CAS: 1310-73-2	sodium hydroxide	E

· **EPA (Environmental Protection Agency)**

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:** Employment restrictions concerning young persons 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**
H290 May be corrosive to metals.
· **Date of preparation / last revision** 02/14/2019 / 5

· **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: hallf 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
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
Met. Corr.1: Corrosive to metals – Category 1
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1

· **Sources**
Data arise from safety data sheets, reference works and literature.
ECOTOX Database
IUCLID (International Uniform Chemical Information Database)

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