

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

Printing date 12/13/2018

Reviewed on 12/13/2018

1 Identification

- **Product identifier**
- **Trade name:** **Nessler's reagent**
- **Catalogue number:** 56Z080498, 465200, 465201, 465203
- **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**



GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.
Acute Tox. 2 H310 Fatal in contact with skin.
Acute Tox. 3 H331 Toxic if inhaled.



GHS08 Health hazard

STOT RE 2 H373 May cause damage to the central nervous system and the kidneys through prolonged or repeated exposure.



GHS05 Corrosion

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



GHS09 Environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.

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



GHS05



GHS06



GHS08



GHS09

- **Signal word** Danger

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Hazard-determining components of labeling:

potassium hydroxide
dipotassium tetraiodomercurate

Hazard statements

H290 May be corrosive to metals.
H301+H331 Toxic if swallowed or if inhaled.
H310 Fatal in contact with skin.
H314 Causes severe skin burns and eye damage.
H373 May cause damage to the central nervous system and the kidneys through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

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.
P308+P310 IF exposed or concerned: Immediately call a poison center/doctor.
P405 Store locked up.

Other hazards

Acid burns have to treated immediately, as it may otherwise cause badly curing wounds.
CAS 7783-33-7: Danger through skin absorption.

3 Composition/information on ingredients

Chemical characterization: Mixtures**Description:** aqueous solution**Composition and Information on Ingredients:**

The percent content of the mercury compound mentioned below refers to the amount of the pure mercury therein.
Percent ranges are used due to the confidential product information.

CAS: 1310-58-3 EINECS: 215-181-3 Index number: 019-002-00-8 RTECS: TT 2102000	potassium hydroxide ⚠ Met. Corr. 1, H290; Skin Corr. 1A, H314; ⚠ Acute Tox. 4, H302	10–20%
CAS: 7783-33-7 EINECS: 231-990-4 Index number: 080-002-00-6 RTECS: OU 9670000	dipotassium tetraiodomercurate ⚠ Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; ⚠ STOT RE 2, H373; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410	1-3%

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.
Remove breathing apparatus only after contaminated clothing have been completely removed.

After inhalation: Supply fresh air or oxygen; call for doctor.

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
breathing difficulty

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Possible damages: damage of respiratory tract

Danger of pulmonary edema.

after swallowing:

strong caustic effect

pain

vomiting

Danger of circulatory collapse.

· **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.

mercury vapours

· **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.

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.

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 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:**

Open and handle receptacle with care.

Ensure good ventilation/exhaustion at the workplace.

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.

Store protective clothing separately.

Wash hands before breaks and at the end of work.

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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.

Store only in the original receptacle.

Unsuitable material for container:

aluminum (Al), tin (Sn), zinc (Zn)

- **Information about storage in one common storage facility:** Store away from metals.

- **Further information about storage conditions:**

Store under lock and key and with access restricted to technical experts or their assistants only.

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:**

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

CAS: 1310-58-3 potassium hydroxide	
REL (USA)	Ceiling limit value: 2 mg/m ³
TLV (USA)	Ceiling limit value: 2 mg/m ³
EL (Canada)	Ceiling limit value: 2 mg/m ³
EV (Canada)	Ceiling limit value: 2 mg/m ³

- **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:**

- **Breathing equipment:** Use respiratory protective device against the effects of fumes/dust/aerosol.

- **Recommended filter device for short term use:** Special gas filter Hg-P3

- **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:** Alkaline resistant protective 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:	Light yellow

- **Odor:** Odorless

- **Odor threshold:** Not applicable.

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· pH-value:	Strongly alkaline
· 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):	1.15 g/cm ³ (9.6 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:	
Water:	75 - 85 %
Solids content:	15 - 25 %
· 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!)
 - Reacts with halogenated compounds.
 - Reacts with strong acids.
 - Reacts with earth alkaline metals.
 - Reacts with ammonia (NH₃).
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**
 - metals
 - light metals
 - organic substances
 - various plastics
 - glass
- **Hazardous decomposition products:** see section 5

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Classification according to calculation procedure.

· Acute toxicity estimate (ATE_(MIX)) - Calculation method:		
Oral	GHS ATE _(MIX)	180–351 mg/kg (.)
Dermal	GHS ATE _(MIX)	196–392 mg/kg (.)

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Inhalative	GHS ATE _(MX)	1.93–3.9 mg/l/4h (aerosol)
LD/LC50 values that are relevant for classification:		
CAS: 1310-58-3 potassium hydroxide		
Oral	LD50	333 mg/kg (rat) (OECD 425) (ECHA)
CAS: 7783-33-7 dipotassium tetraiodomercurate		
Oral	LD50	5 mg/kg (ATE)
Dermal	LD50	5 mg/kg (ATE)
Inhalative	LC50	0.05 mg/l/4h (ATE)

Primary irritant effect:

- **on the skin:** Causes severe skin burns.

- **on the eye:**

- Causes serious eye damage.

- Risk of blindness!

Information on components:

CAS: 1310-58-3 potassium hydroxide		
Irritation of skin	OECD 404	(rabbit: burns)
Irritation of eyes	OECD 405	(rabbit: burns)

- **Sensitization:** Based on available data, the classification criteria are not met.

Information on components:

CAS: 1310-58-3 potassium hydroxide		
Sensitization	OECD 406	(guinea pig: negative)

Carcinogenic categories**IARC (International Agency for Research on Cancer)**

CAS: 7783-33-7	dipotassium tetraiodomercurate	3
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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 (carcinogenicity, 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**

- May cause damage to the central nervous system and the kidneys through prolonged or repeated exposure.

- **Aspiration hazard** Based on available data, the classification criteria are not met.

Information on components:

CAS: 1310-58-3 potassium hydroxide		
OECD 471	(negative) (Bacterial Reverse Mutation Test - Ames test) (Escherichia coli / Salmonella typhimurium)	

Additional toxicological information:

Mercury compounds have a cytotoxic and protoplasmatoxic effect.

The principal signs manifest themselves in the CNS.

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

Other dangerous properties can not be excluded.

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12 Ecological information

- **Toxicity**

- **Aquatic toxicity:**

CAS: 1310-58-3 potassium hydroxide

LC50	80 mg/l/96h (mosquitofish) (IUCLID)
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- **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**

Forms corrosive mixtures with water even if diluted.

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**

UN2922

- **UN proper shipping name**

- **DOT**

Corrosive liquids, toxic, n.o.s. (Potassium hydroxide, Mercury potassium iodide)

- **IMDG**

CORROSIVE LIQUID, TOXIC, N.O.S. (POTASSIUM HYDROXIDE, MERCURY POTASSIUM IODIDE), MARINE POLLUTANT

- **IATA**

CORROSIVE LIQUID, TOXIC, N.O.S. (POTASSIUM HYDROXIDE, MERCURY POTASSIUM IODIDE)

- **Transport hazard class(es)**

- **DOT**



- **Class**

8 Corrosive substances

- **Label**

8, 6.1

- **IMDG**



- **Class**

8 Corrosive substances

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· Label	8/6.1
· IATA	
 	
· Class	8 Corrosive substances
· Label	8 (6.1)
· Packing group	
· DOT, IMDG, IATA	II
· Environmental hazards:	Product contains environmentally hazardous substances: dipotassium tetraiodomercurate
· Marine pollutant:	Yes (DOT) Symbol (fish and tree)
· Special precautions for user	Warning: Corrosive substances
· Danger code (Kemler):	86
· EMS Number:	F-A,S-B
· Segregation groups	Alkalis, heavy metals and their salts (including their organometallic compounds), mercury and mercury compounds
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 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):

CAS: 7783-33-7 | dipotassium tetraiodomercurate

· 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:

CAS: 7783-33-7 | dipotassium tetraiodomercurate

· New Jersey Right-to-Know List:

CAS: 1310-58-3 | potassium hydroxide

· New Jersey Special Hazardous Substance List:

CAS: 1310-58-3 | potassium hydroxide

CO, R1

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· Pennsylvania Right-to-Know List:	
CAS: 1310-58-3	potassium hydroxide
· Pennsylvania Special Hazardous Substance List:	
CAS: 1310-58-3	potassium hydroxide
· EPA (Environmental Protection Agency)	
CAS: 7783-33-7	dipotassium tetraiodomercurate
· NIOSH-Ca (National Institute for Occupational Safety and Health)	
None of the ingredients is listed.	

· **Information about limitation of use:**

Employment restrictions concerning pregnant and lactating women must be observed.
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.
H300 Fatal if swallowed.
H302 Harmful if swallowed.
H310 Fatal in contact with skin.
H314 Causes severe skin burns and eye damage.
H330 Fatal if inhaled.
H373 May cause damage to the central nervous system and the kidneys through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

· **Date of preparation / last revision** 12/13/2018 / -· **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
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
Acute Tox. 2: Acute toxicity – Category 2
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 1: Acute toxicity – Category 1
Skin Corr. 1A: Skin corrosion/irritation – Category 1A

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Eye Dam. 1: Serious eye damage/eye irritation – Category 1
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
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
Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

Sources

Data arise from safety data sheets, reference works and literature.
ECHA: European CHemicals Agency <http://echa.europa.eu>
IUCLID (International Uniform Chemical Information Database)

US