Lovibond® Water Testing

Tintometer® Group



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

Printing date 03/11/2024 Reviewed on 03/11/2024

1 Identification

· Product identifier

· Trade name: Phenole No. 2

· SDS valid from Lot: AA3A0329

· Catalogue number: 00515961, 00515969BT, 00515960BT, 515960BT

· 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

Toxic to Reproduction 1B H360 May damage fertility or the unborn child.



GHS07

Skin Irritation 2 H315 Causes skin irritation.

Eye Irritation 2A H319 Causes serious eye irritation.

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





GHS07

GHS08

· Signal word Danger

· Hazard-determining components of labeling:

boric acid

lithium hydroxide

Hazard statements

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H360 May damage fertility or the unborn child.

· 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.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P302+P352 If on skin: Wash with plenty of water.

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P405 Store locked up.

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· 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:

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	40–50%
CAS: 13746-66-2 EINECS: 237-323-3 RTECS: LJ 8225000	tripotassium hexacyanoferrate Aquatic Chronic 2, H411; Eye Irritation 2A, H319	0.25-<2.5%
CAS: 1310-65-2 EINECS: 215-183-4	lithium hydroxide Skin Corrosion 1A, H314; Eye Damage 1, H318; Acute Toxicity - Oral 4, H302	1–≤2.5%

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.

Get medical advice/attention.

After skin contact:

Immediately wash with water and soap and rinse thoroughly.

Get medical advice/attention.

· After eye contact: Rinse opened eye for several minutes (at least 15 min) under running water. Then consult a doctor.

· After swallowing:

Rinse out mouth and then drink 1-2 glasses of water.

Seek medical treatment.

· Most important symptoms and effects, both acute and delayed

irritations

after inhalation:

mucosal irritations, cough, breathing difficulty

after swallowing:

resorption

sickness

vomiting

cardiovascular disorders

after absorption of large amounts:

fatigue diarrhoea

cramps

drop in temperature

CNS disorders

ataxia (impaired locomotor coordination)

- · Danger: Danger of disturbed cardiac rhythm.
- 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.

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In case of fire, the following can be released:

Hydrogen cyanide (prussic acid HCN)

Hydrogen chloride (HCI)

Potassium oxide

LiOx

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

· Advice for emergency responders:

Mount respiratory protective device.

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.

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: Ensure good ventilation/exhaustion at the workplace.
- · 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.

Unsuitable material for container: metals, metal alloys

Information about storage in one common storage facility:

Do not store together with acids.

see chapter 10

· 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.

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)

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· 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		
CAS: 13746-6	66-2 tripotassium hexacyanoferrate		
PEL (USA)	Long-term value: 5 mg/m³ as CN; Skin		
REL (USA)	Long-term value: 1 mg/m³ as Fe		
TLV (USA)	Long-term value: 1 mg/m³ as Fe		
CAS: 1310-65-2 lithium hydroxide			
WEEL (USA)	Ceiling limit value: 1 mg/m³		
EL (Canada)	Ceiling limit value: 1 mg/m³		
EV (Canada)	Short-term value: 1 mg/m³ anyhydrous		

- · 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 fume/dust/aerosol.
- Recommended filter device for short term use: Filter P3
- · Protection of hands:

Protective gloves

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:

Safety glasses

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: Beige

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Odor: Nearly odorlessOdor threshold: Not determined.

· pH-value (11 g/l) at 20°C (68°F): 8.1

Melting point/freezing point:
 Initial boiling point and boiling range:
 Flash point:
 Not determined.
 Not applicable.

• Flammability (solid, gas): The product is not combustible.

• Auto igniting: Not applicable (solid). • 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:

Vapor Pressure:
 Density:
 Relative density:
 Vapor density:
 Evaporation rate:
 Not applicable.
 Not applicable.
 Not applicable.

· Solubility(ies)

Water: Soluble.

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

· **Kinematic:** Not applicable (solid).

· Other information

· Solids content: 100 %

· Information with regard to physical hazard classes

• Corrosive to metals Based on available data, the classification criteria are not met.

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

Aqueous solution reacts alkaline.

Aqueous solution reacts with metals.

Reacts with acids releasing Hydrogen cyanide (prussic acid).

Reacts with light alloys in the presence of moisture to form hydrogen.

Reacts with alkali (lyes). Reacts with oxidizing agents.

--> Forms heat.

· Conditions to avoid

To avoid thermal decomposition do not overheat.

Exposure to moisture.

Exposure to light

Incompatible materials:

metals

light metals

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.

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Trade name: Phenole No. 2

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		mate (ATE _(MIX)) - Calculation method:
Oral GHS	S ATE _(MIX)	2386 mg/kg (.)
· LD/LC50	values th	at are relevant for classification:
CAS: 100		
Oral	LD50	2660 mg/kg (rat) (OECD 401) (GESTIS, ECHA registrant)
Dermal	LD50.	>2000 mg/kg (rat) (ECHA, registrant: no deaths occurred.)
	LD₀	1500 mg/kg (child) (MERCK)
	NOAEL	9.6 mg/kg (rat) (NTP)
CAS: 13746-66-2 tripotassium hexacyanoferrate		
Oral	LD50	>5110 mg/kg (rat) (ECHA)
Dermal	LD50.	>2000 mg/kg (rat) (ECHA)
CAS: 131	0-65-2 lit	hium hydroxide
Oral	LD50	330 mg/kg (ATE) (Registrant, ECHA) Acute toxicity data are available for oral route of exposure: LD50 (rat, oral): female: 210 mg/kg bw; male: 280 mg/kg bw, both for lithium hydroxide anhydrous. As these values are most likely linked to local tissue damage due to the corrosiveness of the substance and are not only a result of "primary" systemic toxicity the LD50 oral of lithium chloride and lithium carbonate were taken into account after conversion. A LD50 value of 330 mg/kg bw were found to reflect properly the systemic toxicity of the corrosive substance lithium hydroxide anhydrous.
Dermal	LD50.	>2000 mg/kg /bw (rat) (Registrant, ECHA)
Inhalative	LC50	>3.4 mg/l /4h (rat) (Registrant, ECHA)
	NOAEL	13.9–84.8 mg/kg /bw/d (rat) (Registrant, ECHA: oral)

- · Primary irritant effect:
- · on the skin: Causes skin irritation.
- · on the eye: Causes serious eye irritation.

· Information on components:			
CAS: 10043-35-3 boric acid			
Irritation of skin		(rabbit: no irritation) (Registrant, ECHA)	
Irritation of eyes	OECD 492	(rabbit: slight irritation) (IUCLID)	

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

· Information on components:	
CAS: 10043-35-3 boric acid	
Sensitization OECD 406 (guinea pig: 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

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· CMR effects (carcinogenity, mutagenicity and toxicity for reproduction):

The following statements refer to the mixture:

Toxic to Reproduction 1B

- · 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 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)		
	(negative) (In Vitro Mammalian Cell Gene Mutation Test)		
	(mouse lymphomea test)		
	(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:

The following applies to soluble iron compounds: nausea and vomiting after swallowing. The absorption of large quantities is followed by cardiovascular disorders. Toxic effect on liver and kidneys.

The following applies to lithium compounds in general:

after absorption: CNS disorders, ataxia (impaired locomotor coordination) due to disturbed electrolyte balance 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."

Death has been reported to cook in manie from less than 5 grams and in addition of to 25 grams

"Liver - Irregularities - Based on Human Evidence"

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)

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(Contd. of page 7) CAS: 13746-66-2 tripotassium hexacyanoferrate EC50 59 mg/l/48h /OECD 202 (Daphnia magna) (ECHA) NOEC 0.67 mg/l/72h /OECD 201 (Pseudokirchneriella subcapitata) (ECHA) EC50 1.7 mg/l/72h (Pseudokirchneriella subcapitata) (OECD 201) (ECHA) LC50 >100 mg/l/96h (carp) (ECHA) CAS: 1310-65-2 lithium hydroxide EC50 19.1 mg/l/48h (Daphnia magna) without pH-adjustment NOEC 5.71 mg/l/72h (Pseudokirchneriella subcapitata) NOEC 9.9 mg/l /34d (zebrafish) 2.3 mg/l /21d (Daphnia magna) 87.57 mg/l/72h (Pseudokirchneriella subcapitata) EC50

Other information:

LC50

The following applies for lithium compounds in general:

fish toxic from 100 mg/l, Daphnia toxic from 16 mg/l, plants toxic from 0,2 mg/l

· Persistence and degradability No further relevant information available.

· Bioaccumulative potential

Pow = n-octanol/wasser partition coefficient

62.2 mg/l/96h (zebrafish)

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.

*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.

14 Transport information		
· UN-Number · DOT, IMDG, IATA	none	
· UN proper shipping name · DOT, IMDG, IATA	none	
· Transport hazard class(es)		
· DOT, IMDG, IATA · Class	none	
· Packing group · DOT, IMDG, IATA	none	
· Environmental hazards:	Not applicable.	
· Special precautions for user	Not applicable.	

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Transport in bulk according to Annex II of MARPOL73/78

and the IBC Code Not applicable.

· Transport/Additional information: Not dangerous according to the above specifications.

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: 13746-66-2 tripotassium hexacyanoferrate

· TSCA (Toxic Substances Control Act):

All components have the value ACTIVE.

· Hazardous Air Pollutants

CAS: 13746-66-2 tripotassium hexacyanoferrate

- · 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.

New Jersey Right-to-Know List:

None of the ingredients is listed.

New Jersey Special Hazardous Substance List:

None of the ingredients is listed.

· Pennsylvania Right-to-Know List:

None of the ingredients is listed.

· Pennsylvania Special Hazardous Substance List:

None of the ingredients is listed.

EPA (Environmental Protection Agency)

CAS: 10043-35-3 boric acid

l (oral)

CAS: 13746-66-2 tripotassium hexacyanoferrate

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

None of the ingredients is listed.

· 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

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

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H319 Causes serious eye irritation.

H360 May damage fertility or the unborn child.

H411 Toxic to aquatic life with long lasting effects.

- · Recommended restriction of use: professional/industrial use only
- · Version number / date of revision: 22 / 03/11/2024

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 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

Acute Toxicity - Oral 4: Acute toxicity - Category 4

Skin Corrosion 1A: Skin corrosion/irritation – Category 1A
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

Toxic to Reproduction 1B: Reproductive toxicity - Category 1B

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

ECOTOX Database

GESTIS- Stoffdatenbank (Substance Database, Germany)

IUCLID (International Uniform Chemical Information Database)

NTP (National Toxicology Program)

^{*} Data compared to the previous version altered.