

Material Safety Data Sheet According to 91/155 EEC

Printing date 29.07.2005

Reviewed on 29.07.2005

* 1 Identification of substance:


- **Product details:** Reagent for water analysis
- **Product name:** Manganese LR 2
- **Catalog number:** 00516099, (4)516090, (4)516091, (4)516093
- **Supplier:**
Tintometer GmbH
Schleefstraße 8a-12
D - 44287 Dortmund
Made in Germany
- **Informing department:** Department Laboratory
- **Emergency information:**
Poison Center Berlin, Germany
phone: +49(0)30 19240

phone: +49(0)231 94510-0

* 2 Composition/Data on components:

- **Description:**
Preparation contains anorganic compounds.
Mixture of the substances listed below with harmless additions.

- **Dangerous components:**

CAS: 1310-65-2	lithium hydroxide	 C; R 22-35	10-20%
EINECS: 215-183-4			

- **Additional information** For the wording of the listed risk phrases refer to section 16.

* 3 Hazards identification

- **Hazard designation:**



C Corrosive

- **Information pertaining to particular dangers for man and environment**
The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
R 35 Causes severe burns.
- **Classification system**
The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

* 4 First aid measures

- **General information** Instantly remove any clothing soiled by the product.
- **After inhalation**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness bring patient into stable side position for transport.
- **After skin contact**
Instantly rinse with water.

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Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.

- **After eye contact**

Rinse opened eye for several minutes under running water.
Call a doctor immediately.

- **After swallowing**

Do not induce vomiting; instantly call for medical help.
Rinse out mouth and then drink plenty of water.

- **The following symptoms may occur:**

after inhalation:

coughing
breathing difficulty
headache
damage to the affected mucous membranes

after swallowing:

pain
sickness
vomiting
burns
CNS disorders

- **Danger**

Danger of system failure.
Danger of gastric perforation.
Danger of impaired breathing.

- **Treatment**

If swallowed or in case of vomiting, danger of entering the lungs
Subsequent observation for pneumonia and pulmonary oedema

* 5 Fire fighting measures

- **Suitable extinguishing agents** Extinguishing powder. Do not use water.
- **For safety reasons unsuitable extinguishing agents** Water.
- **Special hazards caused by the material, its products of combustion or resulting gases:**

Formation of toxic gases is possible during heating or in case of fire.

Nitrogen oxides (NO_x)
Hydrogen chloride (HCl)
dipotassium oxide

- **Protective equipment:**

Wear self-contained breathing apparatus.
Wear full protective suit.

- **Additional information**

Collect contaminated fire fighting water separately. It must not enter drains.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

* 6 Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.
 - **Measures for environmental protection:** Do not allow product to reach sewage system or water bodies.
 - **Measures for cleaning/collecting:**
Dispose of contaminated material as waste according to item 13.
Ensure adequate ventilation.
Collect mechanically.
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* 7 Handling and storage

- **Handling**
- **Information for safe handling:** Open and handle container with care.
- **Information about protection against explosions and fires:** The product is not flammable
- **Storage**
- **Requirements to be met by storerooms and containers:** Store in cool location.
- **Information about storage in one common storage facility:**
 - Do not store together with acids.
 - Store away from oxidizing agents.
- **Further information about storage conditions:**
 - Keep container tightly sealed.
 - Protect from heat and direct sunlight.
 - Store under dry conditions.
 - Protect from humidity and keep away from water.
 - This product is hygroscopic.
 - Protect from the effects of light.
- **Storage class** Not required.

* 8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

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

1310-65-2 lithium hydroxide

OES (Great Britain)	Short-term value: 1 mg/m ³ ILV
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- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**
 - Keep away from foodstuffs, beverages and food.
 - Take off immediately all contaminated clothing
 - Wash hands during breaks and at the end of the work.
 - Avoid contact with the eyes and skin.
- **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
- **Recommended filter device for short term use:** Filter P2
- **Protection of hands:**
 - Alkaline resistant gloves
 - Only use chemical-protective gloves with CE-labelling of category III.
 - The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
 - After use of gloves apply skin-cleaning agents and skin cosmetics.
- **Material of gloves**
 - nitrile
 - nitrile rubber, NBR
 - Recommended thickness of the material: ≥ 0.11 mm
 - The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material**
 - Value for the permeation: Level ≥ 6 (480 min)
 - The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Tightly sealed safety glasses.
- **Body protection:** Alkaline resistant protective clothing

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* 9 Physical and chemical properties:

· Form:	Tablets
· Colour:	White
· Odour:	Odourless
· Melting point/Melting range:	Not determined
· Boiling point/Boiling range:	925°C
· Flash point:	Not applicable
· Self-inflammability:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive.
· Density at 20°C	2.091 g/cm ³
· Solubility in / Miscibility with Water:	Soluble
· pH-value (11.7 g/l) at 20°C:	12.9
· Solvent content:	
Organic solvents:	0.0 %
· Solids content:	100.0 %

* 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** To avoid thermal decomposition do not overheat.
- **Materials to be avoided:**
 - organic substances
 - acids
 - oxidizing agents
 - > forms heat
- **Dangerous reactions**
 - Reacts with metals to form nitrous fumes and hydrogen
 - Reacts with organic substances
 - Reacts with water
 - > forms heat
 - Corrosive action on metals
 - Corrodes aluminium
 - Aqueous solution reacts alkaline.
 - Reacts with light alloys to form hydrogen
- **Dangerous products of decomposition:** see chapter 5

* 11 Toxicological information

- **Acute toxicity:** Quantitative data on the toxicity of the preparation are not available.

· LD/LC50 values that are relevant for classification:		
7447-40-7 potassium chloride		
Oral	LD50	2600 mg/kg (rat)
1310-65-2 lithium hydroxide		
Oral	LD50	210 mg/kg (rat)

- **Primary irritant effect:**
- **on the skin:** Strong caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effect known.
- **Additional toxicological information:**
 - The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:

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Corrosive

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

The following applies to lithium compounds in general:

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

* 12 Ecological information:

- **Information about elimination (persistence and degradability):**

- **Other information:**

Quantitative data on the ecological effect of this product are not available.

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

- **Behaviour in environmental systems:**

7447-40-7 potassium chloride	
log P(o/w)	- 0.46 (.)

- **Ecotoxicological effects:**

- **Aquatic toxicity:**

7447-40-7 potassium chloride	
EC50	825 mg/l/48h (Daphnia magna)
LC50	920 mg/l/96h (Gambusia affinis)

- **Additional ecological information:**

The following applies to lithium compounds in general:

MERCK - biological effects:

fish toxic from 100 mg/l up

Daphnia toxic from 16 mg/ up

plants toxic from 0.2 mg/l up (value calculated as Li)

- **General notes:**

Rinse off of bigger amounts into drains or the aquatic environment may lead to increased pH-values. A high pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably reduced, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water.

Do not allow product to reach ground water, water bodies or sewage system.

* 13 Disposal considerations

- **Product:**

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

- **European waste catalogue**

16 05 07	discarded inorganic chemicals consisting of or containing dangerous substances
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- **Uncleaned packagings:**

- **Recommendation:** Disposal must be made according to official regulations.

- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

* 14 Transport information

- **Land transport ADR/RID (cross-border)**



- **ADR/RID-GGVS/E Class:** 8 (C6) Corrosive substances.

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- **Kemler Number:** 80
- **UN-Number:** 2680
- **Packaging group:** II
- **Label** 8
- **Designation of goods:** 2680 LITHIUM HYDROXIDE, mixture

· Maritime transport IMDG:


- **IMDG Class:** 8
- **UN Number:** 2680
- **Label** 8
- **Packaging group:** II
- **EMS Number:** F-A,S-B
- **Marine pollutant:** No
- **Correct technical name:** LITHIUM HYDROXIDE

· Air transport ICAO-TI and IATA-DGR:


- **ICAO/IATA Class:** 8
- **UN/ID Number:** 2680
- **Label** 8
- **Packaging group:** II
- **Correct technical name:** LITHIUM HYDROXIDE, SOLID

* 15 Regulatory information

· Designation according to EC guidelines:

The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

· Code letter and hazard designation of product:

C Corrosive

· Hazard-determining components of labelling:

lithium hydroxide

· Risk phrases:

35 Causes severe burns.

· Safety phrases:

20 When using do not eat or drink.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

60 This material and its container must be disposed of as hazardous waste.

16 Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant R-phrases

22 Harmful if swallowed.

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35 Causes severe burns.

- **Department issuing data specification sheet:** Technical Department
- *** Data compared to the previous version altered.**

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