

# Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 02/02/2004



Reviewed on 02/02/2004

## 1 Identification of substance

- **Product details**
- **Trade name:** Manganese LR 1
- **Product Use:** Reagent
- **Part of Orion:** AC2055
- **MSDS p/n:** 233246-001 Revision D
- **Manufacturer/Supplier:**  
Thermo Electron Corporation  
Environmental Instruments  
Water Analysis Group  
166 Cummings Center  
Beverly, MA 01915-6110  
USA  
Phone: 978-232-6000  
Made in Germany

## 2 Composition / Data on components

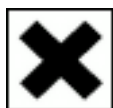
- **Chemical characterization**
- **Description:** Mixture: consisting of the following hazardous components.

CAS No.	Description		
CAS: 12125-02-9 EINECS: 235-186-4	ammonium chloride	 Xn; R 22-36	45-50%
CAS: 3473-11-8 EINECS: 222-440-4	N-hydroxymethaniminium chloride	 Xi; R 36/37/38	2.5-5%

- **Additional information:**  
For the wording of the listed risk phrases refer to section 16.  
The remaining 45% contains no hazardous ingredients according to OSHA definition.

## 3 Hazards identification

- **Hazard description:**



Xn Harmful

- **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.  
Harmful if swallowed.  
Irritating to eyes.
- **Classification system:**  
The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.
- **NFPA ratings (scale 0 - 4)**  
Health = 2  
Fire = 0  
Reactivity = 0

## 4 First aid measures

- **General information:**  
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

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- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Immediately rinse with water.
- **After eye contact:** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:**  
Immediately call a doctor.  
Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- **The following symptoms may occur:**  
After inhalation:  
Mucous membrane irritation  
Coughing  
After swallowing:  
Breathing difficulty  
Irritations  
Headache

## 5 Fire fighting measures

- **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards caused by the material, its products of combustion or resulting gases:**  
Nitrogen oxides (NO<sub>x</sub>)  
Hydrogen chloride (HCl)
- **Protective equipment:** Wear self-contained respiratory protective device.
- **Additional information** Collect contaminated fire fighting water separately. It must not enter the sewage system.

## 6 Accidental release measures

- **Person-related safety precautions:** Avoid formation of dust.
- **Measures for environmental protection:** Do not allow product to reach sewage system or any water course.
- **Measures for cleaning/collecting:** Dispose contaminated material as waste according to item 13.

## 7 Handling and storage

- **Handling:**
- **Information for safe handling:** Prevent formation of dust.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**  
Keep receptacle tightly sealed.  
Store in dry conditions.
- **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:**

**12125-02-9 ammonium chloride (45-50%)**

NIOSH REL	Short-term value: 20 mg/m <sup>3</sup> Long-term value: 10 mg/m <sup>3</sup>
ACGIH TLV	Short-term value: 20 mg/m <sup>3</sup> Long-term value: 10 mg/m <sup>3</sup>

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- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
  - Keep away from foodstuffs, beverages and feed.
  - Immediately remove all soiled and contaminated clothing.
  - Wash hands before breaks and at the end of work.
  - Avoid contact with the eyes.
  - Avoid contact with the eyes and skin.
- **Breathing equipment:** Use respiratory protective device against the effects of fumes/dust/aerosol.
- **Protection of hands:**
  - 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.
  - Use gloves of stable material (e.g. Nitrile) - if necessary tricoted to improve the wearability.
  - After use of gloves apply skin-cleaning agents and skin cosmetics.
- **Material of gloves**
  - 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**
  - 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:** Light weight protective clothing

### 9 Physical and chemical properties

· <b>Odor Threshold:</b>	Not applicable.
· <b>Form:</b>	Tablets
· <b>Color:</b>	White
· <b>Odor:</b>	Odorless
· <b>Melting point/Melting range:</b>	Undetermined.
· <b>Boiling point/Boiling range:</b>	1461°C (2662°F)
· <b>Freezing Point:</b>	Not applicable.
· <b>Flash point:</b>	Not applicable.
· <b>Flammability (solid, gaseous):</b>	
<b>Upper Flammable Limit:</b>	Not applicable.
<b>Lower Flammable Limit:</b>	Not applicable.
· <b>Ignition temperature:</b>	Undetermined.
· <b>Sensitivity to Mechanical Impact:</b>	None
· <b>Sensitivity to Static Discharge:</b>	None
· <b>Auto igniting:</b>	Product is not selfigniting.
· <b>Danger of explosion:</b>	Product does not present an explosion hazard.
· <b>Vapor Pressure:</b>	Not applicable.
· <b>Vapor Density:</b>	Not applicable.
· <b>Specific Gravity:</b>	Not applicable.
· <b>Density:</b>	Not determined.
· <b>Solubility in / Miscibility with</b>	
<b>Water:</b>	Soluble.
· <b>Coefficient of Water / Oil Distribution:</b>	Not applicable.
· <b>pH-value (12.2 g/l) at 20°C (68°F):</b>	2.7

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· <b>Solvent content:</b>	
Organic solvents:	0.0 %
· <b>Solids content:</b>	
	100.0 %

## 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Materials to be avoided:**  
halogen compounds  
nitrates
- **Dangerous reactions:** No dangerous reactions known.
- **Dangerous products of decomposition:** No dangerous decomposition products known.

## 11 Toxicological information

### · Acute toxicity:

### · LD/LC50 values that are relevant for classification:

#### 7647-14-5 sodium chloride

Oral	LD50	3000 mg/kg (rat)
Dermal	LD50	> 10000 mg/kg (rabbit)

#### 12125-02-9 ammonium chloride

Oral	LD50	1440 mg/kg (rat)
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- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
The product shows the following dangers according to internally approved calculation methods for preparations:  
Harmful  
Irritant
- **Carcinogenicity:** NTP? IARC Monographs? OSHA Regulated? Not found on these lists. see chapter 8 / 15
- **Teratogenicity:** Not found.
- **Mutagenicity:** Not found.
- **Reproductive Toxicity:** Not found.
- **Synergistic Products:** None

## 12 Ecological information

### · Ecotoxicological effects:

### · Aquatic toxicity:

#### 7647-14-5 sodium chloride

EC50	1000 mg/l/48h (Daphnia magna)
LC50	7650 mg/l/96h (Pimephales promelas)

#### 12125-02-9 ammonium chloride

LC50	725 mg/l/96h (Lepomis macrochirus)
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### · General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

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*Must not reach bodies of water or drainage ditch undiluted or unneutralized.*

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## 13 Disposal considerations

- **Product:**
- **Recommendation:**  
*Must not be disposed of together with household garbage. Do not allow product to reach sewage system.*
- **Uncleaned packagings:**
- **Recommendation:** *Disposal must be made according to official regulations.*
- **Recommended cleansing agent:** *Water, if necessary with cleansing agents.*

## 14 Transport information

- **DOT regulations:**
- **Hazard class:** *None*
- **Land transport ADR/RID (cross-border):**
- **ADR/RID class:** *None*
- **Maritime transport IMDG:**
- **IMDG Class:** *None*
- **Marine pollutant:** *No*
- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** *None*
- **Propper shipping name:** *None*
- **TDG Class:** *None*
- **Transport/Additional information:** *Not dangerous according to the above specifications.*

## 15 Regulations

- **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):**

7647-14-5	sodium chloride
12125-02-9	ammonium chloride
3473-11-8	N-hydroxymethaniminium chloride

- **Proposition 65**
- **Chemicals known to cause cancer:**  
*None of the ingredients is listed.*
- **Chemicals known to cause reproductive toxicity:**  
*None of the ingredients is listed.*
- **Canadian Ingredient Disclosure List**
- **Limit 0,1%**  
*None of the ingredients is listed.*

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**· Limit 1%**

12125-02-9 ammonium chloride

**· Other Regulations**

**· EPA (Environmental Protection Agency)**

None of the ingredients is listed.

**· IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

**· NTP (National Toxicology Program)**

None of the ingredients is listed.

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

None of the ingredients is listed.

**· OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

**· Product related hazard informations:**

The product has been classified and marked in accordance with directives on hazardous materials.

**· Hazard symbols:**

Xn Harmful

**· Hazard-determining components of labelling:**

ammonium chloride

**· Risk phrases:**

Harmful if swallowed.

Irritating to eyes.

**· Safety phrases:**

Keep out of the reach of children.

Keep away from food, drink and animal feedingstuffs.

Do not breathe dust.

Avoid contact with eyes.

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

Wear suitable protective clothing.

**· Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.**

**· CPR Classification: Class D, Div. 2**

**· MSDS Discloses Information Elements Required by the CPR .**

**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.

**· Contact: Thermo Electron Corporation, EID, Water Analysis, Quality Assurance**

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

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