

## Cl-2 Chloride Reagent 2

**MARTINI**  
instruments

Health & Safety data sheet

According to EC Directive 91/155/EC and following amendments

Date of issue: 23 December 2004.

### 1- Identification of the product and of the company

**Product name:**

- Cl-2 Chloride Reagent 2.

**Application:**

- Determination of chloride in water samples.

**Manufacturer identification:**

Milwaukee s.r.l.  
c.so Leonardo da Vinci 48/50  
21013 Gallarate (VA), Italy  
tel.: +39 0331 268009

**Emergency Telephone n. °:** +39-02-66101029

CENTRO ANTIVELENI  
OSPEDALE NIGUARDA (MI) - ITALY

### 2 - Composition/information on ingredients

*Hazardous Ingredients:*

<i>NAME (EC directives)</i>	<i>EC-Index-No.</i>	<i>CAS No.</i>	<i>LABELLING (EC directives)</i>	<i>CONTENT</i>
Nitric Acid	007-004-00-1	7697-37-2	C, O R 8-35	≥ 5% - < 20%
Iron (III) sulphate hydrate	NA	15244-10-7	Xi R 36/37/38	≥ 5% - < 20%

(full text of R-phrases in section 16).

### 3 - Hazard identification

Causes burns.

### 4 - First aid measures

Remove contaminated, soaked clothing immediately and dispose of safely.

- **After inhalation** : remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.
- **After skin contact** : wash off with plenty of water. Immediately remove contaminated clothing.
- **After eye contact** : rinse out immediately with plenty of water for at least 15 minutes. If discomfort persists obtain medical attention.
- **After swallowing** : wash out mouth thoroughly with water provided person is conscious. OBTAIN MEDICAL ATTENTION.

### 5 - Fire-fighting measures

- **Suitable extinguishing media**  
- Water spray.

- **Special risks:**
  - Non combustible. May evolve toxic fumes in fire: nitrogen oxides, sulfur oxides.
- **Special protective equipment for fire fighting:**
  - Do not stay in dangerous zone without suitable chemical protection clothing and self-contained breathing apparatus.
- **Additional information:**
  - Prevent fire-fighting water from entering surface water or groundwater. Contain escaping vapors with water. Cool container with spray water from a safe distance.

**6 - Accidental release measures**

- **Personal precautions:**
  - Do not inhale vapors. Avoid substance contact. Ensure supply of fresh air in enclosed rooms.
- **Environmental precautions:**
  - Do not discharge into the drains/surface waters/groundwaters.
- **Additional notes:**
  - Render harmless: neutralize with diluted sodium hydroxide solution or by throwing on lime, lime sand or sodium carbonate.

**7 - Handling and storage**

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• <b>Handling:</b> <ul style="list-style-type: none"> <li>- Avoid contact with eyes, skin, and clothing.</li> <li>- Avoid prolonged or repeated exposure.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• <b>Storage:</b> <ul style="list-style-type: none"> <li>- Store at room temperature (+15 to +25 °C recommended). Protect from light and moisture.</li> <li>- Accessible only for authorized persons.</li> </ul> </li> </ul> |
|---|---|

**8 - Exposure control/personal protection**

- **General hygiene measures**
  - Wash thoroughly after handling. Wash contaminated clothing before reuse.

• **Ingredients with occupational exposure limits to be monitored:**

<p>- NITRIC ACID</p> <p><i>EXPOSURE LIMITS - GERMANY</i></p> <table border="0" style="width: 100%;"> <thead> <tr> <th>Source</th> <th>Type</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>TRGS 900</td> <td>OEL</td> <td>5 mg/m<sup>3</sup> 2 ppm</td> </tr> </tbody> </table>	Source	Type	Value	TRGS 900	OEL	5 mg/m <sup>3</sup> 2 ppm	<p>- IRON (III) SULPHATE HYDRATE</p> <p><i>EXPOSURE LIMITS - NORWAY</i></p> <table border="0" style="width: 100%;"> <thead> <tr> <th>Source</th> <th>Type</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td></td> <td>OEL</td> <td>1 mg/m<sup>3</sup></td> </tr> </tbody> </table>	Source	Type	Value		OEL	1 mg/m <sup>3</sup>
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*EXPOSURE LIMITS - NORWAY*

Source	Type	Value
	OEL	5 mg/m <sup>3</sup> 2 ppm

- **Personal protective equipment:**
  - As appropriate to quantity handled.

Health & Safety data sheet

According to EC Directive 91/155/EC and following amendments

- **Respiratory protection:**
  - Required when vapors/aerosols are generated. Work under hood.
- **Protective gloves:**
  - Rubber or plastic
- **Eye protection:**
  - Goggles or face mask

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**9 - Physical/chemical properties**

- **appearance and odor** : light yellow liquid; almost odorless
- **solubility in water** : miscible in all proportions
- **melting point** : NA
- **boiling point** : >100°C
- **density at 20°C** : 1.12 g/cm<sup>3</sup>
- **pH** : <1
- **flash point** : NA

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**10 - Stability and reactivity**

- **Conditions to be avoided:**
  - Heating.
- **Substances to be avoided:**
  - Strong oxidizing agents, organic compounds, metals, metal alloys, alkali metals, alkaline earth metals, ammonia.
- **Hazardous decomposition products:**
  - In the event of fire: see section 5.
- **Hazardous polymerization:**
  - Hazardous polymerization: will not occur.

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**11 - Toxicological information**

Quantitative data on the toxicity of this product are not available.

**APPLICABLE TO MAIN COMPONENTS:**

- The following applies to Nitric Acid:

*Signs and symptoms of exposure*

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and oedema of the larynx and bronchi, chemical pneumonitis, and pulmonary oedema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Large doses may cause: conversion of haemoglobin to methaemoglobin, producing cyanosis; marked fall in blood pressure, leading to collapse, coma, and possibly death.

*Target organ information*

Lungs. Teeth. G.I. System. Cardiovascular system.

- The following applies to Iron (III) sulphate hydrate:

*Acute toxicity*

LD<sub>50</sub> Intraperitoneal, Mouse: 588 mg/kg

*Signs and symptoms of exposure*

Overdose of iron compounds may have a corrosive effect on the gastrointestinal mucosa and be followed by necrosis, perforation, and stricture formation. Several hours may elapse before symptoms that can include epigastric pain, diarrhoea, vomiting, nausea, and hematemesis occur. After apparent recovery a person may experience metabolic acidosis, convulsions, and coma hours or days later. Further complications may develop leading to acute liver necrosis that can result in death due to hepatic coma. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

*Target organ information*

Liver. G.I. System.

- **In case of skin contact** : burns.
- **In case of skin absorption** : may be harmful if absorbed through the skin.
- **In case of eye contact** : caustic effects.
- **In case of inhalation** : harmful by inhalation.
- **In case of ingestion** : toxic if swallowed.
- **Further data** : The product should be handled with the care usual when dealing with chemicals.

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**12 - Ecological information**

Quantitative data on the ecotoxicity of this product are not available.

- **Ecotoxic effect** : quantitative data on the ecological effect of this product are not available.
- **Biological effects** : APPLICABLE TO PARTIAL COMPONENT(S):
  - The following applies to Nitric Acid:  
Harmful effect due to pH shift. Forms corrosive mixtures with water even if diluted. Does not cause biological oxygen deficit. Hazard for drinking water supplies
- **Further ecological data** : APPLICABLE TO PARTIAL COMPONENT(S):
  - The following applies to nitrates in general: may contribute to the eutrophication of water supplies. Hazard for drinking water. Fish toxicity: LC<sub>50</sub>>500 mg/L.

Do not allow to enter waters, waste water, or soil!

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**13 - Disposal considerations**

- **Waste disposal:**
  - Chemical residues are generally classified as special waste, and as such are covered by regulations which vary according to location. Contact your local waste disposal authority for advice, or pass to a chemical disposal company.

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**14 - Transport information**

- **Land transport**

ADR/RID	:	9, II
UN-No.	:	3316
Name	:	CHEMICAL KIT

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### Health & Safety data sheet

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- **Sea transport**  
IMDG : class 9/UN 3316/PG II  
Name : CHEMICAL KIT  
Marine Pollutant : No
- **Air transport**  
ICAO/IATA : 9/UN 3316/PG II  
Name : CHEMICAL KIT

These transport data apply to the COMPLETE KIT!

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### 15 - Regulatory information

#### Labeling according to EC Directives:

Symbol:	<b>C</b>	Corrosive.
R-phrases :	34	Causes burns.
S-phrases :	26-36-45	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).

Contains: Nitric acid.

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### 16 - Other information

- **Text of any R phrases referred to under heading 2:**
- **Supersedes edition of** : / (first edition)
- **Legend** : NA Not applicable  
ND Not determined

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*The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.*