

Health & Safety data sheet
According to EC Directive 91/155/EC

Date of issue: 03 January 2008

SECTION 1 - IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

Product name: Chlorine Reagent 2.
Application: Determination of chlorine in water samples.

Manufacturer identification: Hanna Instruments Italia s.r.l.
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 35010 Villafranca Padovana, Italy
 tel.: +39-049-9070211

Emergency Telephone n. °: +39-02-66101029
 CENTRO ANTIVELENI
 OSPEDALE NIGUARDA (MI) - ITALY

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients:

NAME (EC directives)	EC-Index-No.	CAS No.	LABELLING (EC directives)	CONTENT
Sulphuric acid	016-020-00-8	7664-93-9	C R 35	≥ 15% - < 51%
N,N-Diethyl-1,4-phenylenediammonium sulfate	NA	6283-63-2	T R 23/24/25-36/37/38	≥ 1% - < 5%

SECTION 3 - HAZARD IDENTIFICATION

Causes severe burns.

SECTION 4 - FIRST AID MEASURES

Remove contaminated, soaked clothing immediately and dispose of safely.

- **After inhalation** : fresh air. Summon doctor.
- **After skin contact** : wash off with plenty of water. Immediately remove contaminated clothing.
- **After eye contact** : rinse out immediately with plenty of water and seek medical advise.
- **After swallowing** : drink plenty of water (if necessary several liters), avoid vomiting (risk of perforation!). Immediately seek medical advice. Do not attempt to neutralize.

SECTION 5 – FIRE-FIGHTING MEASURES

- **Suitable extinguishing media:**
 - In adaptation to materials stored in the immediate neighborhood.
- **Special risks:**
 - Hydrogen may form upon contact with metals (danger of explosion!).
 - Development of hazardous combustion gases or vapors possible in the event of fire.
 - The following may develop in event of fire: sulfur oxides, hydrogen sulfide gas.
- **Special protective equipment for fire fighting:**
 - Do not stay in dangerous zone without suitable chemical protection clothing and self-contained breathing apparatus.
- **Additional information:**
 - Product itself is non-combustible. Cool container with spray water from a safe distance. Contain escaping vapors with water.
 - Prevent fire-fighting water from entering surface water or groundwater.

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SECTION 6 - ACCIDENTAL RELEASE MEASURES

- **Personal precautions:**
 - Do not inhale vapors/aerosols. 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.
 - Take up with liquid-absorbent material. Clean up affected area and dispose according to local regulation.

SECTION 7 - HANDLING AND STORAGE

- **Handling:**
 - Avoid generation of vapors/aerosols.
 - Work under hood.
 - Do not inhale substance.
- **Storage:**
 - Tightly closed. In a well-ventilated place at room temperature (+15 to +25 °C).
 - Accessible only for authorized persons.

SECTION 8 - EXPOSURE CONTROL/PERSONAL PROTECTION

- **Engineering controls**
 - Safety shower and eye bath.
- **General hygiene measures**
 - Wash thoroughly after handling. Wash contaminated clothing before reuse. Discard contaminated shoes.
- **Ingredients with occupational exposure limits to be monitored:**
 - SULPHURIC ACID

<i>EXPOSURE LIMITS – DENMARK</i>			<i>EXPOSURE LIMITS – GERMANY</i>		
Source	Type	Value	Source	Type	Value
OEL	TWA	1mg/m ³	TRGS900	OEL	1mg/m ³
Remarks: =1=					
- **Personal protective equipment:**
 - Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled.
- **Respiratory protection:**
 - Required when vapors/aerosols are generated. Work under hood.
- **Protective gloves:**
 - Rubber or plastic
- **Eye protection:**
 - Goggles or face mask

SECTION 9 - PHYSICAL/CHEMICAL PROPERTIES

- **appearance and odor** : colorless liquid, odorless
- **solubility in water** : soluble (development of heat)
- **melting point** : NA
- **boiling point** : >100°C
- **ignition temperature** : NA
- **flash point** : NA
- **explosion limits** : NA
- **density at 20°C** : ~ 1.10 g/cm³
- **pH at 20°C** : strongly acid

SECTION 10 - STABILITY AND REACTIVITY

- **Conditions to be avoided:**
 - Heating.
- **Hazardous decomposition products:**
 - Sulfur oxides, hydrogen sulfide gas.
- **Further information:**
 - Has a corrosive effect
 - Incompatible with metals, animal/vegetal tissue
- **Hazardous polymerization:**
 - Will not occur.
- **Substances to be avoided:**
 - water, alkali metals, alkali compounds, ammonia, alkaline earth metals, alkalis, acids, alkaline earth compounds, metals, metal alloys, phosphorus oxides, phosphorus, hydrides, halogen-halogen compounds, oxyhalogenic compounds, permanganates, nitrates, carbides, combustible substances, organic solvents, acetylidene, nitriles, organic nitro compounds, anilines, peroxides, picrates, nitrides, lithium silicide.

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SECTION 11 - TOXICOLOGICAL INFORMATION

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

APPLICABLE TO MAIN COMPONENT(S): the following applies to Sulphuric acid, as the pure substance:

Acute toxicity

LD50 (oral, rat): 2140 mg/kg (Using 25 % solution).

LC50 (inhalation, rat): 510 mg/m³ /2 h (calculated on the pure substance).

Specific symptoms in animal studies:

Skin irritation test (rabbit): burns.

Eye irritation test (rabbit): burns.

Toxicologic values are not available due to other dangerous properties of the substance.

Chronic exposure - carcinogen

Result: The International Agency for Research on Cancer (IARC) has determined that occupational exposure to strong-inorganic-acid mists containing sulfuric acid is carcinogenic to humans (group 1).

IARC CARCINOGEN LIST

Rating: Group 1

Further toxicological information:

Property of this product must be anticipated on the basis from the components of the preparation:

- **In case of inhalation** : after inhalation of aerosols: damage to the affected mucous membranes.
- **In case of skin contact** : severe burns with formation of scabs.
- **In case of eye contact** : burns, corneal lesion.
- **In case of ingestion** : severe pain (risk of perforation!), nausea, vomiting and diarrhea. After a latency period of several weeks possibly pyloric stenosis.
- **Further data** : further hazardous properties cannot be excluded. The product should be handled with the care usual when dealing with chemicals.

SECTION 12 - ECOLOGICAL INFORMATION

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

APPLICABLE TO MAIN COMPONENT(S):

- **Ecotoxic effect** : the following applies to Sulphuric acid: Biological effects: Harmful effect on aquatic organisms. Harmful effect due to pH shift. Toxic effect on fish and algae. Caustic even in diluted form. Does not cause biological oxygen deficit. Endangers drinking-water supplies if allowed to enter soil and/or waters in large quantities. Neutralization possible in waste water treatment plants. Daphnia toxicity: Daphnia magna EC50: 29 mg/l /24 h (calculated on the pure substance).
- **Further ecological data** : applicable to partial component(s):
 Fish toxicity:
 Sulphuric acid: lethal from 1.2 mg/L; from 6.3 mg/L lethal in 24h.

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

SECTION 13 - DISPOSAL CONSIDERATIONS

- **Waste disposal:**
 - Chemical residues are generally classified as special waste and thus covered by local regulations. Contact local authorities or disposal companies for advice.
 - Handle contaminated packaging in the same way as the substance itself.

SECTION 14 - TRANSPORT INFORMATION

- Land transport

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

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- Sea transport

IMDG	: 9/UN 3316/PG II
Name	: CHEMICAL KIT
Marine pollutant	: no
Severe marine pollutant:	no

- Air transport

ICAO/IATA	: 9/UN 3316/PG II
Name	: CHEMICAL KIT

These transport data apply to the COMPLETE KIT.

SECTION 15 - REGULATORY INFORMATION

Labeling according to EC Directives:

Symbol:	C	Corrosive.
R-phrases:	35	Causes severe burns.
S-phrases:	26-30-36/37/39-45	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Never add water to this product. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).

Contains: Sulphuric acid

SECTION 16 - OTHER INFORMATION

- **Text of any R phrases referred to under heading 2:**

23/24/25	: Toxic by inhalation, in contact with skin and if swallowed.
35	: Causes severe burns.
36/37/38	: Irritating to eyes, respiratory system and skin.

- **Supersedes edition of** : / (1st edition)

- **Reason for revision** : general update
- **Legend** : NA Not applicable
 ND Not determined

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.