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

Date of issue: 26 October 2004.

SECTION 1 - IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

Product name:
- HI 7091 Reducing Pretreatment Solution for ORP Electrodes

Application:
- Maintenance solution.

Manufacturer identification: Hanna Instruments Italia s.r.l.
Viale delle Industrie, 12/A
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***
Iron (II) sulphate heptahydrate	NA	7782-63-0	Xn R 22	≥ 1% - < 10%

(full text of R-phrases in section 16)

SECTION 3 - HAZARD IDENTIFICATION

The concentration of the hazardous ingredients is below the limits of classification: a classification according to categories of danger as specified in directive 67/548/EC is not required. Risk cannot be excluded if the product is handled improperly.

SECTION 4 - FIRST AID MEASURES

Remove contaminated, soaked clothing immediately and dispose of safely.

- **After inhalation** : if inhaled remove to fresh air. If breathing becomes difficult, call a physician.
- **After skin contact** : wash off with water and soap.
- **After eye contact** : rinse out with plenty of water for at least 15 minutes. If pain persists, summon medical advice.
- **After swallowing** : wash out mouth with plenty of water, provided person is conscious. Obtain medical attention if feeling unwell.

SECTION 5 – FIRE-FIGHTING MEASURES

- **Suitable extinguishing media:**
  - In adaptation to materials stored in the immediate neighborhood.
- **Special risks:**
  - Development of hazardous combustion gases or vapors possible in the event of fire.
  - The following may develop in event of fire: 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:**
  - Product itself is non-combustible. Cool container with spray water from a safe distance. Contain escaping vapors with water.

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SECTION 6 - ACCIDENTAL RELEASE MEASURES

- **Personal precautions:**
  - Take up with liquid-absorbent material. Clean up affected area and dispose according to local regulation.
- **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.

SECTION 7 - HANDLING AND STORAGE

- **Handling:**
  - Avoid generation of vapors/aerosols.
  - Do not inhale substance.
- **Storage:**
  - Tightly closed. In a well-ventilated place at +15 to +25 °C, protected from light.

SECTION 8 - EXPOSURE CONTROL/PERSONAL PROTECTION

- **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.
- **Protective gloves:**
  - Rubber or plastic
- **Eye protection:**
  - Goggles or face mask

SECTION 9 - PHYSICAL/CHEMICAL PROPERTIES

- **Appearance** : light green liquid
- **odor** : odorless
- **Solubility in water** : soluble
- **Melting point** : ND
- **Boiling point** : ND
- **pH value at 20ºC** : <2
- **Density at 20ºC** : 1.02 g/cm^3
- **Ignition temperature** : NA
- **Flash point** : NA
- **Thermal decomposition** : ND

SECTION 10 - STABILITY AND REACTIVITY

- **Conditions to be avoided:**
  - Heating.
- **Hazardous decomposition products:**
  - In the event of fire: see section 5.
- **Substances to be avoided:**
  - Strong alkalis/bases.
- **Hazardous Polymerization:**
  - Will not occur.

SECTION 11 - TOXICOLOGICAL INFORMATION

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

APPLICABLE TO MAIN COMPONENT(S):
The following applies to Iron (II) Sulphate Heptahydrate, as the pure substance:
Acute toxicity
LD_{50} (oral, rat): 319 mg/kg (anhydrous substance).
Subacute to chronic toxicity
Sensitization:
In animal experiments: No sensitizing effect.
Bacterial mutagenicity: Ames test: negative.

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.

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

- **In case of skin contact** : slight irritation under certain circumstances repeated skin contact may cause dermatitis or may cause irritative symptoms.
- **In case of eye contact** : intensive exposure may cause irritative symptoms.

- **In case of ingestion** : After swallowing of large amounts: bloody vomiting, diarrhoea, drop in blood pressure.
- **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):
The following applies to Iron (II) Sulphate Heptahydrate, as the pure substance:
Biologic degradation:
Methods for the determination of biodegradability are not applicable to inorganic substances.
Ecotoxic effects:
Biological effects:
Fish toxicity: P.reticulata LC_{50}: 925 mg/l /96 h.
Daphnia toxicity: Daphnia magna EC_{50}: 152 mg/l /48 h (anhydrous substance).
Bacterial toxicity: Pseudomonas fluorescens EC_0: 100 mg/l /24 h (anhydrous substance).
Further ecologic data:
The following applies to dissolved iron compounds in general: fish: toxic as from 0.9 mg/l at pH 6.5-7.5; lethal as from 1 mg/l at pH 5.5-6.7; 50 mg/l iron upper limit for fish life.
When iron ions flocculate in an alkaline medium, mechanical damage occurs in aquatic organisms.

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

Not subject to transport regulations.

SECTION 15 - REGULATORY INFORMATION

Labeling according to EC Directives:

Symbol:	-
R-phrases:	-
S-phrases:	-
Contains:	-

SECTION 16 - OTHER INFORMATION

- **Text of any R phrases referred to under heading 2:**
  22 : Harmful if swallowed
- **Supersedes edition of** : June 2002.
- **Reason for revision** : change in labeling due to reevaluation of constituents.
- **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.