

**Revision Date:** 2013-01-23  
**Reason for Revision:** Regulation (EC) No. 1272/2008 Compliance

**SECTION 1: IDENTIFICATION OF THE PRODUCT AND COMPANY**

**Product Name:** HI 93748B-0 Manganese Low Range Reagent B

**Application:** Determination of Manganese in Water Samples

**Company Information (USA):**

Hanna Instruments, Inc.  
584 Park East Dr, Woonsocket, Rhode Island, USA 02895

**Technical Service Contact Information:**

1-800-426-6287 (8:30AM - 5:00PM ET)  
+1-401-766-4260 (8:30AM - 5:00PM ET)

**USA Emergency Contact Information:**

1-800-424-9300 (Chemtrec 24Hr. Emergency)

**International Emergency Contact Information:**

+1-703-527-3887 (Chemtrec 24Hr. Emergency)

**E-mail Address:**

tech@hannainst.com

**SECTION 2: HAZARD IDENTIFICATION**

Fatal in contact with skin. Toxic if swallowed. Toxic if inhaled. Causes severe skin burns and eye damage. Toxic to aquatic life with long lasting effects. Contact with acids liberates very toxic gas.

**According to Regulation (EC) No. 1272/2008:**

**Classification:** Acute Toxicity, Dermal (Category 2)  
Acute Toxicity, Oral (Category 3)  
Acute Toxicity, Inhalation (Category 3)  
Skin Corrosion (Category 1A)  
Chronic Aquatic Toxicity (Category 2)

**Signal Word:** **Danger**

**Pictograms:**



**Hazard Statements:** H301: Toxic if swallowed.  
H310: Fatal in contact with skin.  
H314: Causes severe skin burns and eye damage.  
H331: Toxic if inhaled.  
H411: Toxic to aquatic life with long lasting effects.  
EUH032: Contact with acids liberates very toxic gas.

**Precaution Statements:** P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection.  
P307+P311: IF exposed: Call a POISON CENTER or doctor/physician.

**According to Directives 67/548/EEC and 1999/45/EC:**

**Symbol:** C: Corrosive  
T: Toxic  
N: Dangerous for the environment

**R-phrases:** 23/24/25-32-34-51/53: Toxic by inhalation, in contact with skin and if swallowed. Contact with acids liberates very toxic gas. Causes burns. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**S-phrases:** 7-26-28a-35-36/39-45: Keep container tightly closed. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water. This material and its container must be disposed of in a safe way. Wear suitable protective clothing and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**SECTION 3: COMPOSITION AND COMPONENT INFORMATION**

<b>Component:</b>	<b>EC No:</b>	<b>CAS No:</b>	<b>Hazard Class:</b>	<b>Phrases:</b>	<b>Concentration:</b>
Potassium Cyanide	205-792-3	151-50-8	Acute Tox. 1 Acute Tox. 2 Aquatic Acute 1 Aquatic Chronic 1 T+, N	H300, H310, H330, H400, H410, EUH032 R: 26/27/28-32-50/53	> 2.5% - < 7%
Sodium hydroxide	215-185-5	1310-73-2	Skin Corr. 1A C	H314 R: 35	> 5% - < 20%

**SECTION 4: FIRST AID MEASURES**

<b>After Inhalation:</b>	Remove to fresh air. Immediately call in physician. If breathing stops: immediately apply mechanical ventilation, if necessary also oxygen.
<b>After Skin Contact:</b>	Wash affected area with plenty of water. Remove contaminated clothing. Call in physician.
<b>After Eye Contact:</b>	Rinse out with plenty of water. Call in physician.
<b>After Swallowing:</b>	If victim is still conscious, make him drink plenty of water, induce vomiting, administer activated charcoal (20-40 g in 10% slurry). Immediately call in physician. Instructions for the doctor: Keep antidotes ready (sodium thiosulfate; dimethylaminophenol; Cobalt-EDTA.)
<b>General Information:</b>	Rapid action is needed immediately! First-aid personnel need to ensure self-protection! Immediately call in physician (mentioning cyanide poisoning).

**SECTION 5: FIRE-FIGHTING MEASURES**

<b>Suitable Extinguishing Media:</b>	Water spray, Carbon Dioxide, Dry Chemical Powder, Appropriate Foam.
<b>Special Risks:</b>	Non-combustible. Development of hazardous combustion gases or vapors possible in the event of fire. The following may develop in the event of fire: Hydrogen Cyanide
<b>Special Protective Equipment:</b>	Do not stay in dangerous zone without suitable chemical protection clothing and self-contained breathing apparatus
<b>Additional Information:</b>	Contain escaping vapors with water. Prevent fire-fighting water from entering surface water or groundwater.

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

<b>Personal Precautions:</b>	Do not inhale vapors/aerosols. Avoid substance contact. Remove contaminated, soaked clothing immediately and dispose of safely.
<b>Environmental Precautions:</b>	Do not discharge into the drains/surface waters/groundwater.
<b>Additional Notes:</b>	Take up with liquid-absorbent material. Dispose according to local regulation.

**SECTION 7: HANDLING AND STORAGE**

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

## Safety Data Sheet

According to Regulation (EC) No. 1907/2006  
OSHA Regulation 29 CFR 1910.1200  
Canadian Regulation SOR/88-66

### **SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION**

<b>Type</b>	<b>Value</b>	<b>Source</b>	<b>Type</b>	<b>Value</b>	<b>Source</b>
<b>Potassium Cyanide</b>					
Ceiling	5 mg/m <sup>3</sup>	Belgium	Ceiling	5 mg (CN)/m <sup>3</sup>	Canada (Ontario)
Ceiling	11 mg (CN)/m <sup>3</sup>	Canada (Quebec)	TWA (8hr)	5 mg (CN)/m <sup>3</sup>	France
TWA (8hr)	5 mg (CN)/m <sup>3</sup>	Greece	TWA (8hr)	5 mg (CN)/m <sup>3</sup>	Hungary
TWA (8hr)	2.4 mg/m <sup>3</sup>	Netherlands	Ceiling	5 mg (CN)/m <sup>3</sup>	Poland
Ceiling	5 mg (CN)/m <sup>3</sup>	Portugal	TWA (8hr)	0.5 mg (CN)/m <sup>3</sup>	Romania
Ceiling	5 mg (CN)/m <sup>3</sup>	Spain	TWA (8hr)	5 mg (CN)/m <sup>3</sup>	UK
TWA (8hr)	5 mg/m <sup>3</sup>	USA (ACGIH)	TWA (8hr)	5 mg (CN)/m <sup>3</sup>	USA (OSHA)
<b>Sodium Hydroxide</b>					
Ceiling	2 mg/m <sup>3</sup>	Belgium	Ceiling	2 mg/m <sup>3</sup>	Canada (Ontario)
Ceiling	2 mg/m <sup>3</sup>	Canada (Quebec)	TWA (8hr)	2 mg/m <sup>3</sup>	France
TWA (8hr)	2 mg/m <sup>3</sup>	Greece	TWA (8hr)	2 mg/m <sup>3</sup>	Hungary
TWA (8hr)	0.5 mg/m <sup>3</sup>	Poland	Ceiling	2 mg/m <sup>3</sup>	Portugal
TWA (8hr)	1 mg/m <sup>3</sup>	Romania	Ceiling	2 mg/m <sup>3</sup>	Spain
TWA (15min)	2 mg/m <sup>3</sup>	UK	Ceiling	2 mg/m <sup>3</sup>	USA (ACGIH)
TWA (8hr)	2 mg/m <sup>3</sup>	USA (OSHA)			

**Engineering:**

Maintain general industrial hygiene practice.

**Personal Protective Equipment:**

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

**Respiratory Protection:**

Required when vapors/aerosols are generated. Work under hood.

**Protective Gloves:**

Rubber or plastic

**Eye Protection:**

Goggles or face mask

**Industrial Hygiene:**

Immediately change contaminated clothing. Wash hands and face after working with substance. Work under hood. Do not inhale substance. Avoid generation of vapors/aerosols. Under no circumstances eat or drink at workplace.

### **SECTION 9: PHYSICAL/CHEMICAL PROPERTIES**

<b>Appearance:</b>	Colorless liquid	<b>Odor:</b>	Odorless	<b>Density at 20°C:</b>	1.11 g/cm <sup>3</sup>
<b>Melting Point:</b>	NA	<b>Boiling Point:</b>	ND	<b>Solubility:</b>	Soluble
<b>pH at 20°C:</b>	12.3	<b>Explosion Limit:</b>	NA	<b>Flash Point:</b>	NA
<b>Thermal Decomp.:</b>	NA				

**SECTION 10: STABILITY AND REACTIVITY**

**Conditions to be Avoided:**

Heating

**Hazardous Polymerization:**

Will not occur.

**Further Information:**

Not available

**Hazardous Decomposition Products:**

Contact with acids/acid fumes releases toxic cyanide gas. Toxic gases or vapors in the event of fire, see section 5.

**Substances to be Avoided:**

Acids, oxidizers, chlorates, permanganates, iodine, peroxides, nitrates.

**SECTION 11: TOXICOLOGICAL INFORMATION**

**Product Toxicity**

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

**Potential Health Effects:**

**Inhalation:** Mucosal irritations, nausea, vomiting, tachycardia, dyspnoea, dizziness, unconsciousness.

**Skin Contact:** Burns. Danger of skin absorption. Lethal effect after absorption.

**Eye Contact:** Burns. Risk of blindness!

**Ingestion:** Absorption. Lethal effects after absorption, respiratory paralysis, cardiovascular failure.

**Further Data:** The following applies to cyanogen compounds/nitriles in general: utmost caution! Release of hydrocyanic acid is possible – blockade of cellular respiration. Cardiovascular disorders, dyspnoea, unconsciousness. The product should be handled with particular care. Quantity contained may be sufficient to cause lethal intoxication.

**Component Toxicity**

**Acute Toxicity:**

**Potassium Cyanide**

**LD50:** Oral - Rat - 5 mg/kg

**Chronic Toxicity:**

Not Available

**Additional Data:**

**APPLICABLE TO PARTIAL COMPONENT:**

The following applies to Sodium hydroxide – as the pure substance

Acute toxicity

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

Specific symptoms in animal studies:

Eye irritation test (rabbit): burns.

Skin irritation test (rabbit): burns.

Subacute to chronic toxicity

Mutagenicity (mammal cell test): micronucleus negative.

Bacterial mutagenicity: Escherichia coli: negative.

Bacterial mutagenicity: Ames test: negative.

No teratogenic effect in animal experiments.

**SECTION 12: ECOLOGICAL INFORMATION**

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

**APPLICABLE TO PARTIAL COMPONENT:**

The following applies to potassium cyanide – as the pure substance:

Abiotic degradation:

Slow degradation. (air).

Behavior in environmental compartments:

log p(o/w): 0.44;

No bioaccumulation is to be expected (log P(o/w) <1).

Ecotoxic effects:

Biological effects:

Highly toxic for aquatic organisms. May cause long-term adverse effects in the aquatic environment. Hazard for drinking water supplies. Forms toxic and corrosive mixtures with water even if diluted.

Fish toxicity:

L.macrochirus LC 50 : 0.083 mg/L /96 h;

Onchorhynchus mykiss LC 50 : 0.057 mg/L /96 h;

P.promelas LC 50 : 0.12 mg/L /96 h.

Maximum permissible toxic concentration:

Algal toxicity:

Sc.quadricauda IC 5 : 0.03 mg/L /8 d (referred to cyanide ions).

Bacterial toxicity:

Ps.putida EC 5 : 0.001 mg/L /16 h (referred to cyanide ions).

Protozoa: E.sulcatum EC 5 : 1.8 mg/L /72 h (referred to cyanide ions).

Further ecologic data:

Biodegradation: >99 % /7 d.

COD: 0.816 g/g.

**APPLICABLE TO PARTIAL COMPONENT:**

The following applies to Sodium hydroxide – as the pure substance

Biologic degradation:

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

Behavior in environmental compartments:

Concentration in organisms is not to be expected.

Ecotoxic effects:

Biological effects:

Harmful effect on aquatic organisms. Toxic effect on fish and plankton. Harmful effect due to pH shift. Forms corrosive mixtures with water even if diluted. Does not cause biological oxygen deficit.

Neutralization possible in waste water treatment plants.

Fish toxicity:

Onchorhynchus mykiss LC 50 : 45.4 mg/L /96 h (in hard water).

L.macrochirus LC 50 : 99 mg/L /48h.

Daphnia toxicity:

Daphnia magna EC 50 : 76 mg/L /24 h.

**Further Data:** Do not allow to enter waters, waste water, 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: TRANSPORTATION INFORMATION**

	<b>Land (ADR/RID):</b>	<b>Sea (IMDG):</b>	<b>Air (ICAO/IATA):</b>
<b>UN No.:</b>	2922	2922	2922
<b>Proper Shipping Name:</b>	Corrosive liquid, toxic, n.o.s. (sodium hydroxide, potassium cyanide solution)	Corrosive liquid, toxic, n.o.s. (sodium hydroxide, potassium cyanide solution)	Corrosive liquid, toxic, n.o.s. (sodium hydroxide, potassium cyanide solution)
<b>Class (Sub Risk):</b>	8 (6.1)	8 (6.1)	8 (6.1)
<b>Packing Group:</b>	II	II	II

**Safety Data Sheet**According to Regulation (EC) No. 1907/2006  
OSHA Regulation 29 CFR 1910.1200  
Canadian Regulation SOR/88-66**SECTION 15: REGULATORY INFORMATION**

Complies with European Regulations (EC) No. 1907/2006 and No. 1272/2008.  
Complies with European Council Directives 67/548/EEC and 1999/45/EC.  
Complies with OSHA Regulation 29 CFR 1910.1200.  
Complies with Canadian Regulation SOR/88-66

**SECTION 16: OTHER INFORMATION*****Text of phrases under Section 3***

H300: Fatal if swallowed.  
H310: Fatal in contact with skin.  
H314: Causes severe skin burns and eye damage.  
H330: Fatal if inhaled.  
H400: Very toxic to aquatic life.  
H410: Very toxic to aquatic life with long lasting effects.  
R26/27/28: Very toxic by inhalation, in contact with skin and if swallowed.  
R32: Contact with acids liberates very toxic gas.  
R35: Causes severe burns.  
R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

***Revision Information***

**Revision Date:** 2013-01-23  
**Supersedes edition of:** 2012-05-21  
**Reason for revision:** Regulation (EC) No. 1272/2008  
Compliance

***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.**