

## Safety data sheet according to Regulation (EC) No. 1907/2006

### SECTION 1. Identification of the substance/mixture and of the company/undertaking.

#### 1.1. Product identifier.

Code. HI93732A-0  
Product name. Dissolved Oxygen Reagent A

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against.

Intended use. Determination of Dissolved Oxygen in Water Samples.

#### 1.3. Details of the supplier of the safety data sheet.

Name. Hanna Instruments S.R.L.  
Full address. str. Hanna Nr 1  
District and Country. 457260 loc. Nusfalau (Salaj)  
Romania  
Tel. (+40) 260607700  
Fax. (+40) 260607700  
e-mail address of the competent person.  
responsible for the Safety Data Sheet. msds@hanna.ro

#### 1.4. Emergency telephone number.

For urgent inquiries refer to. Emergency Number - International: +(1)-703-527-3887 - UK, London:  
+(44)-870-8200418 - CHEMTREC 24 hours/365 days

### SECTION 2. Hazards identification.

#### 2.1. Classification of the substance or mixture.

The product is classified as hazardous pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of EC Regulation 1907/2006 and subsequent amendments.

Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

Specific target organ toxicity - repeated exposure, category 2	H373	May cause damage to organs through prolonged or repeated exposure.
Serious eye damage, category 1	H318	Causes serious eye damage.
Hazardous to the aquatic environment, chronic toxicity, category 3	H412	Harmful to aquatic life with long lasting effects.

#### 2.2. Label elements.

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:



Signal words: Danger

Hazard statements:

H373	May cause damage to organs through prolonged or repeated exposure.
H318	Causes serious eye damage.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements:

P280	Wear protective gloves / eye protection / face protection.
------	--

**SECTION 2. Hazards identification.** ... / >>

**P305+P351+P338** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**P312** Call a POISON CENTER or doctor, if you feel unwell.

**Contains:** MANGANESE (II) SULPHATE MONOHYDRATE

**2.3. Other hazards.**

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

**SECTION 3. Composition/information on ingredients.****3.1. Substances.**

Information not relevant.

**3.2. Mixtures.**

**Contains:**

**Identification.**                      **x = Conc. %.**                      **Classification 1272/2008 (CLP).**

**MANGANESE (II) SULPHATE MONOHYDRATE**

32,54% - metallic element

CAS. 10034-96-5     $10 \leq x < 25$                       STOT RE 2 H373, Eye Dam. 1 H318, Aquatic Chronic 2 H411

EC. 232-089-9

INDEX. 025-003-00-4

The full wording of hazard (H) phrases is given in section 16 of the sheet.

**SECTION 4. First aid measures.****4.1. Description of first aid measures.**

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.

SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Wash contaminated clothing before using it again.

INHALATION: Remove to open air. If the subject stops breathing, administer artificial respiration. Get medical advice/attention immediately.

INGESTION: Get medical advice/attention immediately. Do not induce vomiting. Do not administer anything not explicitly authorised by a doctor.

**4.2. Most important symptoms and effects, both acute and delayed.**

Specific information on symptoms and effects caused by the product are unknown.

For symptoms and effects caused by the contained substances, see chap. 11.

MANGANESE (II) SULPHATE MONOHYDRATE

Irritant effects, gastric pain, Diarrhoea, Nausea, Vomiting.

**4.3. Indication of any immediate medical attention and special treatment needed.**

Information not available.

**SECTION 5. Firefighting measures.****5.1. Extinguishing media.**

SUITABLE EXTINGUISHING EQUIPMENT

The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.

UNSUITABLE EXTINGUISHING EQUIPMENT

None in particular.

**5.2. Special hazards arising from the substance or mixture.**

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Do not breathe combustion products.

**SECTION 5. Firefighting measures.** ... / >>**5.3. Advice for firefighters.****GENERAL INFORMATION**

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

**SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS**

Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

**SECTION 6. Accidental release measures.****6.1. Personal precautions, protective equipment and emergency procedures.**

Block the leakage if there is no hazard.

Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

**6.2. Environmental precautions.**

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

**6.3. Methods and material for containment and cleaning up.**

Collect the leaked product into a suitable container. If the product is flammable, use explosion-proof equipment. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.

Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

**6.4. Reference to other sections.**

Any information on personal protection and disposal is given in sections 8 and 13.

**SECTION 7. Handling and storage.****7.1. Precautions for safe handling.**

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

**7.2. Conditions for safe storage, including any incompatibilities.**

Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Keep containers away from any incompatible materials, see section 10 for details.

**7.3. Specific end use(s).**

Information not available.

**SECTION 8. Exposure controls/personal protection.****8.1. Control parameters.**

Regulatory References:

TLV-ACGIH      ACGIH 2016

### SECTION 8. Exposure controls/personal protection. ... / >>

#### MANGANESE (II) SULPHATE MONOHYDRATE

##### Threshold Limit Value.

Type	Country	TWA/8h	STEL/15min
		mg/m3 ppm	mg/m3 ppm
TLV-ACGIH		0,1	

##### Predicted no-effect concentration - PNEC.

Normal value in fresh water	0,013	mg/l
Normal value for fresh water sediment	0,011	mg/kg/
Normal value for marine water sediment	0,001	mg/kg/
Normal value for water, intermittent release	0,03	mg/l
Normal value of STP microorganisms	56	mg/l
Normal value for the terrestrial compartment	25,1	mg/kg/

##### Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers.			Effects on workers			
	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local
Inhalation.			VND	0,043 mg/m3			VND
Skin.			VND	0,002 mg/kg bw/d			VND

##### Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.  
VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified.

### 8.2. Exposure controls.

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration. Personal protective equipment must be CE marked, showing that it complies with applicable standards.

Provide an emergency shower with face and eye wash station.

Exposure levels must be kept as low as possible to avoid significant build-up in the organism. Manage personal protective equipment so as to guarantee maximum protection (e.g. reduction in replacement times).

#### HAND PROTECTION

Protect hands with category III work gloves (see standard EN 374).

The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

#### SKIN PROTECTION

Wear category II professional long-sleeved overalls and safety footwear (see Directive 89/686/EEC and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

#### EYE PROTECTION

Wear a hood visor or protective visor combined with airtight goggles (see standard EN 166).

#### RESPIRATORY PROTECTION

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, use a mask with a type B filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

#### ENVIRONMENTAL EXPOSURE CONTROLS.

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

### SECTION 9. Physical and chemical properties.

#### 9.1. Information on basic physical and chemical properties.

Appearance	liquid
Colour	pink
Odour	odourless
Odour threshold.	Not available.
pH.	3,8

### SECTION 9. Physical and chemical properties. ... / >>

Melting point / freezing point.	Not available.
Initial boiling point.	Not available.
Boiling range.	Not available.
Flash point.	> 60 °C.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Lower inflammability limit.	Not available.
Upper inflammability limit.	Not available.
Lower explosive limit.	Not available.
Upper explosive limit.	Not available.
Vapour pressure.	Not available.
Vapour density	Not available.
Relative density.	1,000
Solubility	soluble in water
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature.	Not available.
Decomposition temperature.	Not available.
Viscosity	Not available.
Explosive properties	Not available.
Oxidising properties	Not available.

#### 9.2. Other information.

Total solids (250°C / 482°F)	23,77 %
VOC (Directive 2010/75/EC) :	0
VOC (volatile carbon) :	0

### SECTION 10. Stability and reactivity.

#### 10.1. Reactivity.

There are no particular risks of reaction with other substances in normal conditions of use.

#### 10.2. Chemical stability.

The product is stable in normal conditions of use and storage.

#### 10.3. Possibility of hazardous reactions.

No hazardous reactions are foreseeable in normal conditions of use and storage.

MANGANESE (II) SULPHATE MONOHYDRATE

Violent reactions possible with: acids.

#### 10.4. Conditions to avoid.

None in particular. However the usual precautions used for chemical products should be respected.

#### 10.5. Incompatible materials.

Information not available.

#### 10.6. Hazardous decomposition products.

Information not available.

### SECTION 11. Toxicological information.

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.

It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

#### 11.1. Information on toxicological effects.

MANGANESE (II) SULPHATE MONOHYDRATE

Acute oral toxicity, Symptoms: After uptake of large quantities:, Nausea, Vomiting, Diarrhoea, gastric pain, Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract - Acute inhalation toxicity Symptoms: tissue damage, Pneumonia - Specific target organ toxicity, repeated exposure, May cause damage to organs through prolonged or repeated exposure.

**SECTION 11. Toxicological information.** ... / >>ACUTE TOXICITY.

LC50 (Inhalation - vapours) of the mixture:	Not classified (no significant component).
LC50 (Inhalation - mists / powders) of the mixture:	Not classified (no significant component).
LD50 (Oral) of the mixture:	Not classified (no significant component).
LD50 (Dermal) of the mixture:	Not classified (no significant component).

MANGANESE (II) SULPHATE MONOHYDRATE

LC50 (Inhalation).	> 4,45 mg/l/4h Rat
--------------------	--------------------

SKIN CORROSION / IRRITATION.

Does not meet the classification criteria for this hazard class.

SERIOUS EYE DAMAGE / IRRITATION.

Causes serious eye damage.

RESPIRATORY OR SKIN SENSITISATION.

Does not meet the classification criteria for this hazard class.

GERM CELL MUTAGENICITY.

Does not meet the classification criteria for this hazard class.

CARCINOGENICITY.

Does not meet the classification criteria for this hazard class.

REPRODUCTIVE TOXICITY.

Does not meet the classification criteria for this hazard class.

STOT - SINGLE EXPOSURE.

Does not meet the classification criteria for this hazard class.

STOT - REPEATED EXPOSURE.

May cause damage to organs.

ASPIRATION HAZARD.

Does not meet the classification criteria for this hazard class.

**SECTION 12. Ecological information.**

This product is dangerous for the environment and the aquatic organisms. In the long term, it have negative effects on aquatic environment.

**12.1. Toxicity.**MANGANESE (II) SULPHATE MONOHYDRATE

EC50 - for Algae / Aquatic Plants.	61 mg/l/72h Desmodesmus subspicatus
------------------------------------	-------------------------------------

**12.2. Persistence and degradability.**

Information not available.

**12.3. Bioaccumulative potential.**

Information not available.

**12.4. Mobility in soil.**

Information not available.

**12.5. Results of PBT and vPvB assessment.**

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

**12.6. Other adverse effects.**

Information not available.



**SECTION 15. Regulatory information. ... / >>**

Substances subject to the Stockholm Convention:

None.

Healthcare controls.

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

WGK 1: Low hazard to waters

**15.2. Chemical safety assessment.**

No chemical safety assessment has been processed for the mixture and the substances it contains.

**SECTION 16. Other information.**

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

<b>STOT RE 2</b>	Specific target organ toxicity - repeated exposure, category 2
<b>Eye Dam. 1</b>	Serious eye damage, category 1
<b>Eye Irrit. 2</b>	Eye irritation, category 2
<b>Aquatic Chronic 2</b>	Hazardous to the aquatic environment, chronic toxicity, category 2
<b>Aquatic Chronic 3</b>	Hazardous to the aquatic environment, chronic toxicity, category 3
<b>Aquatic Chronic 4</b>	Hazardous to the aquatic environment, chronic toxicity, category 4
<b>H373</b>	May cause damage to organs through prolonged or repeated exposure.
<b>H318</b>	Causes serious eye damage.
<b>H319</b>	Causes serious eye irritation.
<b>H411</b>	Toxic to aquatic life with long lasting effects.
<b>H412</b>	Harmful to aquatic life with long lasting effects.
<b>H413</b>	May cause long lasting harmful effects to aquatic life.

**LEGEND:**

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE NUMBER: Identifier in ESIS (European archive of existing substances)
- CLP: EC Regulation 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

**GENERAL BIBLIOGRAPHY**

1. Regulation (EU) 1907/2006 (REACH) of the European Parliament
2. Regulation (EU) 1272/2008 (CLP) of the European Parliament



**SECTION 16. Other information. ... / >>**

3. Regulation (EU) 790/2009 (I Atp. CLP) of the European Parliament
4. Regulation (EU) 2015/830 of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament

- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- ECHA website

**Note for users:**

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Provide appointed staff with adequate training on how to use chemical products.

**Changes to previous review:**

The following sections were modified:

09.