

Safety Data Sheet

According to U.S.A. Federal Hazcom 2012 and Canadian HPR - WHMIS 2015

1. Identification

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**
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e-mail address of the competent person responsible for the Safety Data Sheet

msds@hanna.ro

Product distribution by:

Hanna Instruments, Inc - 584 Park East Drive, Woonsocket, Rhode Island, USA 02895 - Technical Service Contact Information: +1 8004266287 - e-mail: sds@hannainst.com

1.4. Emergency telephone number

For urgent inquiries refer to

USA Emergency Contact Information: +1 8004249300 - CHEMTREC 24 hours/365 days - International Emergency Contact Information: +1 7035273887 - CHEMTREC 24 hours/365 days

2. Hazards identification

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200). The product thus requires a safety datasheet. Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Classification and Hazard Statement

Specific target organ toxicity - repeated exposure, category 2
Serious eye damage, category 1

May cause damage to organs through prolonged or repeated exposure.
Causes serious eye damage.

Hazard pictograms:



Signal words: **Danger**

Hazard statements:

H373 May cause damage to organs through prolonged or repeated exposure.
H318 Causes serious eye damage.

Precautionary statements:

Prevention:

P280 Wear protective gloves / eye protection / face protection.

Response:

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

2. Hazards identification ... / >>

P312 Continue rinsing.
Storage: Call a POISON CENTRE or doctor, if you feel unwell.

Disposal: --

2.2. Other hazards

Environmental classification as for Reg. (EU) 1272/2008 (CLP):

The product is classified as hazardous for environment pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP).

Classification and Hazard Statement

Hazardous to the aquatic environment, chronic toxicity, category 3

Harmful to aquatic life with long lasting effects.

Hazard statements:

H412 Harmful to aquatic life with long lasting effects.

Precautionary statements:

Prevention:

Response:

Storage:

Disposal:

Additional hazards

Information not available

3. Composition/information on ingredients

3.2. Mixtures

Contains:

Identification

x = Conc. %

Classification:

MANGANESE (II) SULPHATE MONOHYDRATE

CAS 10034-96-5 $9 \leq x < 25$

Specific target organ toxicity - repeated exposure, category 2 H373,
Serious eye damage, category 1 H318, Hazardous to the aquatic environment,
chronic toxicity, category 2 H411

EC 232-089-9

INDEX 025-003-00-4

* There is a batch to batch variation.

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

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.

MANGANESE (II) SULPHATE MONOHYDRATE

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

4. First-aid measures ... / >>

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

Information not available

5. Fire-fighting 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.

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).

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. 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.

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

8. Exposure controls/personal protection

8.1. Control parameters

Regulatory References:

USA	OSHA-PEL	Occupational Exposure Limits - Limits for Air Contaminants TABLE Z-1-1910.1000.
USA	CAL/OSHA-PEL	California Division of Occupational Safety and Health (Cal-OSHA) Permissible Exposure Limits (PELs).
EU	OEL EU	Directive (EU) 2019/1831; Directive (EU) 2019/130; Directive (EU) 2019/983; Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 98/24/EC; Directive 91/322/EEC.
	TLV-ACGIH	ACGIH 2019

MANGANESE (II) SULPHATE MONOHYDRATE

Threshold Limit Value

Type	Country	TWA/8h mg/m3	ppm	STEL/15min mg/m3	ppm	Remarks / Observations
TLV-ACGIH	-	0.1				INHAL
OEL	EU	0.2				INHAL
OSHA	USA			5 (C)		
OSHA	USA			5 (C)		
CAL/OSHA	USA	0.2				
CAL/OSHA	USA	0.2				

Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.

MANGANESE (II) SULPHATE MONOHYDRATE

Mn - Methods for measurement of the workplace atmosphere have to correspond to the requirements of norm ISO15202

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 comply with current regulations.

HAND PROTECTION

Protect hands with category III work gloves (OSHA 29 CFR 1910.138).

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 I professional long-sleeved overalls and safety footwear. Wash body with soap and water after removing protective clothing.

EYE PROTECTION

Wear airtight protective goggles (OSHA 29 CFR 1910.133).

RESPIRATORY PROTECTION

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, wear a mask with a NIOSH certified filter, whose class must be chosen according to the limit of use concentration (NIOSH 42 CFR 84, OSHA 29 CFR 1910.134). 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 or external air-intake breathing apparatus. For a correct choice of respiratory protection device, see standard NIOSH 42 CFR 84, OSHA 29 CFR 1910.134.

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.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Value	Information
Appearance	liquid	
Colour	pink	
Odour	odourless	

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

Odour threshold	Not available
pH	3.8
Melting point / freezing point	Not available
Initial boiling point	Not available
Boiling range	Not available
Flash point	> 93 °C (199,4 °F)
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	17.5
Vapour density	Not available
Relative density	1
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 %
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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

MANGANESE (II) SULPHATE MONOHYDRATE
In decomposition develops: sulphur oxides, manganese.

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.

11. Toxicological information ... / >>

Metabolism, toxicokinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

Information not available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Information not available

Interactive effects

Information not available

ACUTE TOXICITY

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

This product is not considered to be a carcinogen by IARC, ACGIH, NTP, and OSHA.

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

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

12. Ecological information ... / >>

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 $\geq$ than 0,1%.

12.6. Other adverse effects

Information not available

13. Disposal considerations

13.1. Waste treatment methods

Reuse, when possible. Neat product residues should be considered special non-hazardous waste.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

14. Transport information

The product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

14.1. UN number

Not applicable

14.2. UN proper shipping name

Not applicable

14.3. Transport hazard class(es)

Not applicable

14.4. Packing group

Not applicable

14.5. Environmental hazards

Not applicable

14.6. Special precautions for user

Not applicable

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Information not relevant

15. Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Federal Regulations

Clean Air Act Section 112(b):

10034-96-5 MANGANESE (II) SULPHATE MONOHYDRATE (Manganese compounds, Manganese inorganic compounds)

Clean Air Act Section 602 Class I Substances:

No component(s) listed.

Clean Air Act Section 602 Class II Substances:

No component(s) listed.

Clean Water Act – Priority Pollutants:

No component(s) listed.

Clean Water Act – Toxic Pollutants:

No component(s) listed.

DEA List I Chemicals (Precursor Chemicals):

No component(s) listed.

DEA List II Chemicals (Essential Chemicals):

No component(s) listed.

EPA List of Lists:

313 Category Code:

10034-96-5 MANGANESE (II) SULPHATE MONOHYDRATE (Manganese compounds, Manganese inorganic compounds)

EPCRA 302 EHS TPQ:

No component(s) listed.

EPCRA 304 EHS RQ:

No component(s) listed.

CERCLA RQ:

No component(s) listed.

EPCRA 313 TRI:

10034-96-5 MANGANESE (II) SULPHATE MONOHYDRATE (Manganese compounds, Manganese inorganic compounds)

RCRA Code:

No component(s) listed.

CAA 112 (r) RMP TQ:

No component(s) listed.

State Regulations

Massachusetts:

No component(s) listed.

Minnesota:

No component(s) listed.

New Jersey:

10034-96-5 MANGANESE (II) SULPHATE MONOHYDRATE (Manganese compounds, Manganese inorganic compounds)

New York:

No component(s) listed.

Pennsylvania:

10034-96-5 MANGANESE (II) SULPHATE MONOHYDRATE (Manganese compounds, Manganese inorganic compounds)

15. Regulatory information ... / >>

California:

10034-96-5 MANGANESE (II) SULPHATE MONOHYDRATE (Manganese compounds, Manganese inorganic compounds)

Proposition 65:

This product does not contain any substances known to the State of California to cause cancer, reproductive harm or birth defects.

International Regulations

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:

None

Substances subject to the Rotterdam Convention:

None

Substances subject to the Stockholm Convention:

None

16. Other information

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

H373	May cause damage to organs through prolonged or repeated exposure.
H318	Causes serious eye damage.
H411	Toxic to aquatic life with long lasting effects.

LEGEND:

- 313 CATEGORY CODE: Emergency Planning and Community Right-to Know Act Section 313 Category Code
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAA 112 ® RMP TQ: Risk Management Plan Threshold Quantity (Clean Air Act Section 112®)
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CERCLA RQ: Reportable Quantity (Comprehensive Environment Response, Compensation, and Liability Act)
- CLP: EC Regulation 1272/2008
- DEA: Drug Enforcement Administration
- EmS: Emergency Schedule
- EPA: US Environmental Protection Agency
- EPCRA: Emergency Planning and Community Right-to Know Act
- EPCRA 302 EHS TPQ: Extremely Hazardous Substance Threshold Planning Quantity (Section 302 Category Code)
- EPCRA 304 EHS RQ: Extremely Hazardous Substance Reportable Quantity (Section 304 Category Code)
- EPCRA 313 TRI: Toxics Release Inventory (Section 313 Category Code)
- 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
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PEL: Predicted exposure level
- RCRA Code: Resource Conservation and Recovery Act Code
- REL: Recommended exposure limit
- 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.
- TSCA: Toxic Substances Control Act
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- WHMIS: Workplace Hazardous Materials Information System.

GENERAL BIBLIOGRAPHY:

- GHS rev. 3
- The Merck Index. 10th Edition
- Handling Chemical Safety
- Niosh - Registry of Toxic Effects of Chemical Substances
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

16. Other information ... / >>

- 6 NYCRR part 597
- Cal/OSHA website
- California Safe Drinking Water and Toxic Enforcement Act
- EPA website
- Hazard Communication Standard (HCS 2012)
- IARC website
- List Of Lists EPA: Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112® of the Clean Air Act
- Massachusetts 105 CMR Department of public health 670.000: "Right to Know"
- Minnesota Chapter 5206 Department Of Labor and Industry Hazardous Substances, Employee "Right to Know".
- New Jersey Worker and Community Right to know Act N.J.S.A.
- NTP. 2011. Report on Carcinogens, 12th Edition.
- OSHA website
- Pennsylvania, Hazardous Substance List, Chapter 323

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.

CALCULATION METHODS FOR CLASSIFICATION

Product classification derives from criteria established by the OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200), unless determined otherwise in Section 11 and 12. The data for evaluation of chemical-physical properties are reported in section 9.

Changes to previous review:

The following sections were modified:

01 / 02 / 03 / 04 / 08 / 09 / 10 / 11 / 15 / 16.