

Safety data sheet according to U.S.A. Federal Hazcom 2012 and Canadian Regulation SOR/88-66

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

1.1. Product identifier.

Code. **HI4012-01**
Product name. **0.10 mol/L Lead Standard**

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

Intended use. **Calibration of Lead Ion Selective Electrodes.**

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. **sds@hannainst.com**

Product distribution by: **Hanna Instruments, Inc - 584 Park East, Woonsochet, Rhode Island, USA 02895 - Technical Service Contact Information: +1-800-426-6287**

1.4. Emergency telephone number.

For urgent inquiries refer to. **USA Emergency Contact Information: +1-800-424-9300 - CHEMTREC 24 hours/365 days - International Emergency Contact Information: +1-703-527-3887 - CHEMTREC 24hours/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 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.

Reproductive toxicity, category 1A

Specific target organ toxicity - repeated exposure, category 2

May damage fertility or the unborn child.

May cause damage to organs through prolonged or repeated exposure.

Hazard pictograms:



Signal words: **Danger**

Hazard statements:

H360

H373

May damage fertility or the unborn child.

May cause damage to organs through prolonged or repeated exposure.

Precautionary statements:

Prevention:

P201

P273

P280

Obtain special instructions before use.

Avoid release to the environment.

Wear protective gloves, protective clothing, eye protection and face protection.

Response:

P308+P313

IF exposed or concerned: Get medical advice / attention.

Storage:

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

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 2

Toxic to aquatic life with long lasting effects.

Hazard pictograms:



Hazard statements:

H411

Toxic to aquatic life with long lasting effects.

Precautionary statements:

Prevention: --

Response: --

Storage: --

Disposal: --

Additional hazards.

Information not available.

SECTION 3. Composition/information on ingredients.

3.1. Substances.

Information not relevant.

3.2. Mixtures.

Contains:

Identification.	x = Conc. %.	Classification:
LEAD (II) PERCHLORATE		
CAS. 13453-62-8	2.5 ≤ x < 5	Oxidising solid, category 2 H272, Reproductive toxicity, category 1A H360Df, Reproductive toxicity, category 2 H361f, Acute toxicity, category 4 H302, Acute toxicity, category 4 H332, Specific target organ toxicity - repeated exposure, category 2 H373, Hazardous to the aquatic environment, acute toxicity, category 1 H400 M=1, Hazardous to the aquatic environment, chronic toxicity, category 1 H410 M=1
EC. 237-125-7		
INDEX. 082-001-00-6		

LEAD (II) PERCHLORATE
CAS. 13453-62-8

2.5 ≤ x < 5

Oxidising solid, category 2 H272, Reproductive toxicity, category 1A H360Df, Reproductive toxicity, category 2 H361f, Acute toxicity, category 4 H302, Acute toxicity, category 4 H332, Specific target organ toxicity - repeated exposure, category 2 H373, Hazardous to the aquatic environment, acute toxicity, category 1 H400 M=1, Hazardous to the aquatic environment, chronic toxicity, category 1 H410 M=1

EC. 237-125-7
INDEX. 082-001-00-6

* There is a batch to batch variation.

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. Wash immediately with plenty of water. If irritation persists, get medical advice/attention. Wash contaminated clothing before using it again.

INHALATION: Remove to open air. In the event of breathing difficulties, get medical advice/attention immediately.

INGESTION: Get medical advice/attention. Induce vomiting only if indicated by the doctor. Never give anything by mouth to an unconscious person, unless authorised by a doctor.

SECTION 4. First aid measures. ... / >>

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.

LEAD (II) PERCHLORATE

The following applies to lead compounds in general: Due to the poor absorbability via the gastrointestinal tract, only very high doses lead to acute cases of intoxication. After a latency period of several hours, metallic taste, nausea, vomiting, and colics occur, in many instances followed by shock. Chronic uptake causes peripheral muscular weakness ("drop-wrist"), anaemia, and central-nervous disorders. Women of child-bearing age should not be exposed to the substance over longer periods of time (observe critical threshold).

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

Extinguishing substances are: carbon dioxide and chemical powder. For product loss or leakage that has not caught fire, water spray can be used to disperse flammable vapours and protect those trying to stem the leak.

UNSUITABLE EXTINGUISHING EQUIPMENT

Do not use jets of water.

Water is not effective for putting out fires but can be used to cool containers exposed to flames to prevent explosions.

5.2. Special hazards arising from the substance or mixture.

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

If large quantities of the product are involved in a fire, they can make it considerably worse. Do not breathe combustion products.

LEAD (II) PERCHLORATE

Not combustible. Has a fire-promoting effect due to release of oxygen.

5.3. Advice for firefighters.

GENERAL INFORMATION

In the case of fire, use jets of water to cool the containers to prevent the risk of explosions (product decomposition and excess pressure) and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Remove all containers containing the product from the fire, if it is safe to do so.

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.

Ensure that there is an adequate earthing system for the equipment and personnel. Avoid contact with eyes and skin. Do not breathe powders, vapours or mists. Do not eat, drink or smoke during use. Wash hands after use. Avoid leakage of the product into the environment.

SECTION 7. Handling and storage. ... / >>

7.2. Conditions for safe storage, including any incompatibilities.

Store only in the original container. Store in a ventilated and dry place, far away from sources of ignition. Keep containers well sealed. Keep the product in clearly labelled containers. Avoid overheating. Avoid violent blows. 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:

EU OEL EU Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC.
TLV-ACGIH ACGIH 2016

LEAD (II) PERCHLORATE

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min	
		mg/m ³	ppm	mg/m ³	ppm
OEL	EU	0.15			
TLV-ACGIH	-	0.05			

Legend:

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

LEAD (II) PERCHLORATE

Pb - Methods for measurement of the workplace atmosphere have to correspond to the requirements of norms ISO 15202 - Biological Values, ACGIH: 30 µg/100 mL Pb in blood, DEU: 30 µg/100 mL Pb in Vollblut, ESP: 70 µg/100 mL Plomo en sangre.

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 (see Directive 89/686/EEC and standard EN ISO 20344). 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 and 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.

SECTION 9. Physical and chemical properties.

9.1. Information on basic physical and chemical properties.

Appearance	liquid
Colour	colourless
Odour	odourless
Odour threshold.	Not available.
pH.	3.9

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

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.		Not available.
Vapour density		Not available.
Relative density.		1.03
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)	4,00 %
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SECTION 10. Stability and reactivity.

10.1. Reactivity.

Information not available.

10.2. Chemical stability.

Information not available.

10.3. Possibility of hazardous reactions.

The product may react violently with water.

10.4. Conditions to avoid.

Avoid overheating. Prevent moisture or water from penetrating inside the containers.

10.5. Incompatible materials.

LEAD (II) PERCHLORATE
Incompatible with: organic substances, metal powders.

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.

ACUTE TOXICITY.

LC50 (Inhalation - vapours) of the mixture:	Not classified (no significant component).
LC50 (Inhalation - mists / powders) of the mixture:	
LD50 (Oral) of the mixture:	>2000 mg/kg
LD50 (Dermal) of the mixture:	Not classified (no significant component).

LEAD (II) PERCHLORATE	
LD50 (Oral).	200 mg/kg

SKIN CORROSION / IRRITATION.

Does not meet the classification criteria for this hazard class.

SERIOUS EYE DAMAGE / IRRITATION.

SECTION 11. Toxicological information. ... / >>

Does not meet the classification criteria for this hazard class.

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.

May damage fertility or the unborn child.

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 is toxic for aquatic organisms. In the long term, it have negative effects on aquatic environment.

12.1. Toxicity.

Information not available.

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.

Information not available.

12.6. Other adverse effects.

Information not available.

SECTION 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.

SECTION 14. Transport information.

14.1. UN number.

ADR / RID, IMDG, IATA: 3082

ADR / RID: In accordance with Special Provision 375, this product, when is packed in receptacles of a capacity \leq 5Kg or 5L, is not submitted to ADR provisions.

IMDG: In accordance with Section 2.10.2.7 of IMDG Code, this product, when is packed in receptacles of a capacity \leq 5Kg or 5L, is not submitted to IMDG Code provisions.

IATA:

SECTION 14. Transport information. ... / >>

In accordance with SP A197, this product, when is packed in receptacles of a capacity ≤ 5Kg or 5L, is not submitted to IATA dangerous goods regulations.

14.2. UN proper shipping name.

ADR / RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (LEAD II PERCHLORATE) SOLUTION
 IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (LEAD II PERCHLORATE) SOLUTION
 IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (LEAD II PERCHLORATE) SOLUTION

14.3. Transport hazard class(es).

ADR / RID: Class: 9 Label: 9



IMDG: Class: 9 Label: 9



IATA: Class: 9 Label: 9



14.4. Packing group.

ADR / RID, IMDG, IATA: III

14.5. Environmental hazards.

ADR / RID: Environmentally Hazardous.



IMDG: Marine Pollutant.



IATA: Environmentally Hazardous.



14.6. Special precautions for user.

ADR / RID:	HIN - Kemler: 90	Limited Quantities: 5 L	Tunnel restriction code: (E)
IMDG:	Special Provision: -	Limited Quantities: 5 L	Packaging instructions: 964
IATA:	EMS: F-A, S-F	Maximum quantity: 450 L	Packaging instructions: 964
	Cargo:	Maximum quantity: 450 L	
	Pass.:	A97, A158, A197	
	Special Instructions:		

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

Information not relevant.

SECTION 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):
No component(s) listed.

Clean Air Act Section 602 Class I Substances:
No component(s) listed.

Clean Air Act Section 602 Class II Substances:
No component(s) listed.

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

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:

No component(s) listed.

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:

No component(s) listed.

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:

No component(s) listed.

New York:

No component(s) listed.

Pennsylvania:

No component(s) listed.

California:

No component(s) listed.

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:

LEAD (II) PERCHLORATE - (LEAD COMPOUNDS)

LEAD (II) PERCHLORATE - (LEAD COMPOUNDS)

Substances subject to the Rotterdam Convention:

None.

Substances subject to the Stockholm Convention:

None.

Canadian WHMIS:

Information not available.

SECTION 16. Other information.

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

Ox. Sol. 2	Oxidising solid, category 2
Repr. 1A	Reproductive toxicity, category 1A
Repr. 2	Reproductive toxicity, category 2
Acute Tox. 4	Acute toxicity, category 4
STOT RE 2	Specific target organ toxicity - repeated exposure, category 2
Aquatic Acute 1	Hazardous to the aquatic environment, acute toxicity, category 1
Aquatic Chronic 1	Hazardous to the aquatic environment, chronic toxicity, category 1
H272	May intensify fire; oxidiser.
H360	May damage fertility or the unborn child.
H360Df	May damage the unborn child. Suspected of damaging.
H361f	Suspected of damaging fertility.
H302	Harmful if swallowed.
H332	Harmful if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very 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

SECTION 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"
- Minensota Chapter 5206 Departemnt 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.

Changes to previous review:

The following sections were modified:

01 / 04 / 05 / 08.