

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. **HI4013-02**
Product name. **100 ppm Nitrate Standard (as N)**

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

Intended use. **Calibration of Nitrate 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.

Carcinogenicity, category 1B
Skin sensitization, category 1

May cause cancer.
May cause an allergic skin reaction.

Hazard pictograms:



Signal words: **Danger**

Hazard statements:

H350 May cause cancer.
H317 May cause an allergic skin reaction.

Precautionary statements:

Prevention:

P201 Obtain special instructions before use.
P260 Do not breathe dust, fume, gas, mist, vapours, spray.
P280 Wear protective gloves, protective clothing, eye protection and face protection.

Response:

P302+P352 IF ON SKIN: Wash with plenty of water and soap.

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

P308+P313 IF exposed or concerned: Get medical advice / attention.
P333+P313 If skin irritation or rash occurs: Get medical advice / attention.

Storage: --

Disposal: --

2.2. Other hazards.

Information not available.

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

Information not relevant.

3.2. Mixtures.**Contains:**

Identification.	x = Conc. %.	Classification:
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FORMALDEHYDE

CAS. 50-00-0	$0.1 \leq x < 0.5$
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Flammable liquid, category 4 H227, Carcinogenicity, category 1B H350, Germ cell mutagenicity, category 2 H341, Acute toxicity, category 3 H301, Acute toxicity, category 3 H311, Acute toxicity, category 3 H331, Skin corrosion, category 1B H314, Specific target organ toxicity - single exposure, category 3 H335, Skin sensitization, category 1 H317

EC. 200-001-8

INDEX. 605-001-00-5

* 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 30-60 minutes, opening the eyelids fully. Get medical advice/attention.

SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.

INGESTION: Have the subject drink as much water as possible. Get medical advice/attention. Do not induce vomiting unless explicitly authorised by a doctor.

INHALATION: Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.

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.

FORMALDEHYDE

FORMALDEHYDE 37% WITH METHANOL 10% - Irritation and corrosion, Allergic reactions, Cough, Shortness of breath, inebriation, Dizziness, Headache, Drowsiness, agitation, spasms, Impairment of vision, narcosis, Coma, Risk of blindness!

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.

SECTION 5. Firefighting measures. ... / >>

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.

FORMALDEHYDE

FORMALDEHYDE 37% WITH METHANOL 10% - Mixture with combustible ingredients. Vapours are heavier than air and may spread along floors. Forms explosive mixtures with air on intense heating. Development of hazardous combustion gases or vapours possible in the event of fire.

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.

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:**

USA	NIOSH-REL	NIOSH publication No. 2005-149, 3th printing, 2007.
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).
	TLV-ACGIH	ACGIH 2016

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

FORMALDEHYDE

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
TLV-ACGIH	-			0.37 (C)	0.3 (C)
OSHA	USA		0.75		2
CAL/OSHA	USA		0.75		2
NIOSH	USA		0.016		0.1 (C)

Legend:

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

FORMALDEHYDE

Methods for measurement of the workplace atmosphere have to correspond to the requirements of norm OSHA ID-205.

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.

SECTION 9. Physical and chemical properties.

9.1. Information on basic physical and chemical properties.

Appearance	liquid
Colour	colourless
Odour	characteristic
Odour threshold.	Not available.
pH.	5.5
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.	1.006
Solubility	Not available.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature.	Not available.

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

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)	0,07 %
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SECTION 10. Stability and reactivity.

10.1. Reactivity.

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

FORMALDEHYDE

FORMALDEHYDE 37% WITH METHANOL 10%: Aqueous solutions are stabilised with methanol but tend to polymerise over time. Storage temperature varies according to concentration. Solutions >25% are also corrosive. Decomposes under the effect of heat.

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.

FORMALDEHYDE

FORMALDEHYDE 37% WITH METHANOL 10%: Risk of explosion on contact with: nitromethane, nitrogen dioxide (at 180°C/356°F), hydrogen peroxide, phenol, performic acid, nitric acid. It may also polymerise on contact with: strong oxidising agents, alkalis. Can react dangerously with: hydrochloric acid, magnesium carbonate, sodium hydroxide, perchloric acid and aniline. Forms explosive mixtures with the air.

10.4. Conditions to avoid.

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

FORMALDEHYDE

FORMALDEHYDE 37% WITH METHANOL 10%: Avoid exposure to light, sources of heat and naked flames.

10.5. Incompatible materials.

FORMALDEHYDE

FORMALDEHYDE 37% WITH METHANOL 10%: Acids, alkalis, ammonia, tannin, strong oxidising agents, phenols and copper, silver and iron salts.

10.6. Hazardous decomposition products.

FORMALDEHYDE

FORMALDEHYDE 37% WITH METHANOL 10%: Carbon oxides.

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.

FORMALDEHYDE

FORMALDEHYDE 37% WITH METHANOL 10% - Acute oral toxicity, Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach, absorption - Acute inhalation toxicity, Symptoms: mucosal irritations, Cough, Shortness of breath, Inhalation may lead to the formation of oedemas in the respiratory tract., Possible damages:, damage of respiratory tract absorption - Acute dermal toxicity, Symptoms: Blistering, Fissuring absorption - Acute toxicity estimate, Skin irritation, Mixture causes burns - Eye irritation, Mixture causes serious eye damage. Lacrimal irritation due to vapours. Risk of blindness! - Sensitisation, Mixture may cause an allergic skin reaction - Germ cell mutagenicity, CMR effects, Carcinogenicity: Possible carcinogen - Mutagenicity: Evidence of genetic defects. Specific target organ toxicity, single exposure, Target Organs: Eyes, Mixture causes damage to organs - Target Organs: Respiratory system, Mixture may cause respiratory irritation.

ACUTE TOXICITY.

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

LC50 (Inhalation - vapours) of the mixture:	600,001 mg/l
LC50 (Inhalation - mists / powders) of the mixture:	Not classified (no significant component).
LD50 (Oral) of the mixture:	20000,040 mg/kg
LD50 (Dermal) of the mixture:	54000,108 mg/kg

FORMALDEHYDE	
LD50 (Oral).	100 mg/kg Rat
LD50 (Dermal).	270 mg/kg Rabbit
LC50 (Inhalation).	0.588 mg/l/4h Rat

Carcinogenicity Assessment:
50-00-0 FORMALDEHYDE
IARC:1
NTP: Known

SKIN CORROSION / IRRITATION.
Does not meet the classification criteria for this hazard class.

SERIOUS EYE DAMAGE / IRRITATION.
Does not meet the classification criteria for this hazard class.

RESPIRATORY OR SKIN SENSITISATION.
Sensitising for the skin.

GERM CELL MUTAGENICITY.
Does not meet the classification criteria for this hazard class.

CARCINOGENICITY.
May cause cancer.

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.
Does not meet the classification criteria for this hazard class.

ASPIRATION HAZARD.
Does not meet the classification criteria for this hazard class.

SECTION 12. Ecological information.

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation.

12.1. Toxicity.
Information not available.

12.2. Persistence and degradability.

FORMALDEHYDE	
Solubility in water.	55000 mg/l
Rapidly biodegradable.	

12.3. Bioaccumulative potential.

FORMALDEHYDE	
Partition coefficient: n-octanol/water.	0.35
BCF.	< 1

12.4. Mobility in soil.

SECTION 12. Ecological information. ... / >>

FORMALDEHYDE

Partition coefficient: soil/water.

1.202

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.

FORMALDEHYDE

FORMALDEHYDE 37% WITH METHANOL 10%: Caustic even in diluted form. Disinfectant effect. Endangers drinking-water supplies if allowed to enter soil and/or waters in large quantities. Discharge into the environment must be avoided.

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.

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.

SECTION 15. Regulatory information.**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture.**

U.S. Federal Regulations.

TSCA:

All components are listed on TSCA Inventory.

Clean Air Act Section 112(b):

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

50-00-0 FORMALDEHYDE

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:

50-00-0 FORMALDEHYDE

EPCRA 302 EHS TPQ:

50-00-0 FORMALDEHYDE

EPCRA 304 EHS RQ:

50-00-0 FORMALDEHYDE

CERCLA RQ:

50-00-0 FORMALDEHYDE

EPCRA 313 TRI:

50-00-0 FORMALDEHYDE

RCRA Code:

50-00-0 FORMALDEHYDE

CAA 112 (r) RMP TQ:

50-00-0 FORMALDEHYDE

State Regulations.Massachusetts:

50-00-0 FORMALDEHYDE

Minnesota:

50-00-0 FORMALDEHYDE

New Jersey:

50-00-0 FORMALDEHYDE

New York:

50-00-0 FORMALDEHYDE

Pennsylvania:

50-00-0 FORMALDEHYDE

California:

50-00-0 FORMALDEHYDE

Proposition 65:

WARNING! This product contains chemicals known to the State of California to cause cancer and birth defects or reproductive harm.

50-00-0 FORMALDEHYDE C

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

None.

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

Substances subject to the Rotterdam Convention:

None.

Substances subject to the Stockholm Convention:

None.

Candadian WHMIS.

Information not available.

SECTION 16. Other information.

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

Flam. Liq. 4	Flammable liquid, category 4
Carc. 1B	Carcinogenicity, category 1B
Muta. 2	Germ cell mutagenicity, category 2
Acute Tox. 3	Acute toxicity, category 3
Skin Corr. 1B	Skin corrosion, category 1B
STOT SE 3	Specific target organ toxicity - single exposure, category 3
Skin Sens. 1	Skin sensitization, category 1
H227	Combustible liquid.
H350	May cause cancer.
H341	Suspected of causing genetic defects.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H331	Toxic if inhaled.
H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.
H317	May cause an allergic skin reaction.

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.

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

- 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.