Safety Data Sheet

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

1. Identification

1.1. Product identifier

Code	HI3895K-0
Product name	Potassium Reagent

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

Intended use	Determination of Potassium in Soil (Extract) 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
Supplier:	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

Acute toxicity, category 4	Harmful if swallowed.
Acute toxicity, category 4	Harmful if inhaled.
Specific target organ toxicity - repeated exposure, category 2	May cause damage to organs through prolonged or repeated exposure.
Skin corrosion, category 1	Causes severe skin burns and eye damage.
Serious eye damage, category 1	Causes serious eye damage.

Hazard pictograms:

Signal words: Danger

Hazard statements:

H302+H332	Harmful if swallowed or if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H314	Causes severe skin burns and eye damage.

Precautionary statements:
Prevention:

P260	Do not breathe dust, fume, gas, mist, vapours, spray.
P280	Wear protective gloves / eye protection / face protection.

2. Hazards identification ... / >>

Response:

P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water / shower.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor.

Storage:

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Disposal:

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The mixture contains 5.00% of components of unknown acute inhalation toxicity.

2.2. Other hazards

Information not available

3. Composition/information on ingredients

3.2. Mixtures

Contains:

Identification		x = Conc. %	Classification:
EDTA TETRASODIUM SALT			
INDEX	607-428-00-2	50 ≤ x < 100	Acute toxicity, category 4 H302, Acute toxicity, category 4 H332, Specific target organ toxicity - repeated exposure, category 2 H373, Serious eye damage, category 1 H318
EC	200-573-9		
CAS	194491-31-1		
SODIUM TETRAPHENYLBORATE			
		1 ≤ x < 5	Acute toxicity, category 3 H301
EC	205-605-5		
CAS	143-66-8		
LITHIUM HYDROXIDE			
		1 ≤ x < 3	Acute toxicity, category 3 H301, Skin corrosion, category 1A H314, Serious eye damage, category 1 H318
EC	215-183-4		
CAS	1310-66-3		

* 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 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.

SODIUM TETRAPHENYLBORATE
Muscular weakness. The following applies to boron compounds in general: resorption is followed by nausea and vomiting, agitation, spasms, CNS disorders, cardiovascular disorders.

LITHIUM HYDROXIDE
Irritation and corrosion, Cough, Shortness of breath, Risk of blindness! The following applies to lithium compounds in general: when handled or used inappropriately, the absorption of large quantities is followed by CNS disorders, agitation, spasms, ataxia (impaired locomotor coordination) due to disturbed electrolyte balance.

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. The product is combustible and, when the powder is released into the air in sufficient concentrations and in the presence of a source of ignition, it can create explosive mixtures with air. Fires may start or get worse by leakage of the solid product from the container, when it reaches high temperatures or through contact with sources of ignition.

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

If there are no contraindications, spray powder with water to prevent the formation of dust.
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 and place it in containers for recovery or disposal. If there are no contraindications, use jets of water to eliminate product residues.
Make sure the leakage site is well aired. Evaluate the compatibility of the container to be used, by checking section 10. 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

During the risk assessment process, it is essential to take into consideration the ACGIH occupational exposure levels for inert particulate not otherwise classified (PNOC respirable fraction: 3 mg/m3; PNOC inhalable fraction: 10 mg/m3). For values above these limits, use a P type filter, whose class (1, 2 or 3) must be chosen according to the outcome of risk assessment.

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
In the case of prolonged contact with the product, protect the hands with penetration-resistant work gloves (OSHA 29 CFR 1910.138).
Work glove material must be chosen according to the use process and the products that may form. Latex gloves may cause sensitivity reactions.
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
Use a NIOSH certified filtering facemask (NIOSH 42 CFR 84, OSHA 29 CFR 1910.134) or equivalent device, whose class and effective need, must be defined according to the outcome of risk assessment.
ENVIRONMENTAL EXPOSURE CONTROLS
The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Value	Information
Appearance	solid powder	
Colour	light blue	
Odour	odourless	
Odour threshold	not available	
pH	11.5 - 11.8	Method:ASTM D1293-18 Concentration: 1.0 % Temperature: 25 °C
Melting point / freezing point	not available	
Initial boiling point	not applicable	
Boiling range	not available	
Flash point	not applicable	
Evaporation rate	not available	
Flammability	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	2	
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 applicable	
Oxidising properties	not applicable	

9.2. Other information

Total solids (250°C / 482°F)	100,00 %

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

The powders are potentially explosive when mixed with air.

LITHIUM HYDROXIDE
Violent reactions possible with: acids.

10.4. Conditions to avoid

Avoid environmental dust build-up.

10.5. Incompatible materials

EDTA TETRASODIUM SALT
Incompatible with: strong oxidising agents.
LITHIUM HYDROXIDE
Aluminium, Lead, Zinc, Tin.

10.6. Hazardous decomposition products

Information not available

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

LITHIUM HYDROXIDE
Acute oral toxicity, absorption, Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach - Acute inhalation toxicity, Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages, damage of respiratory tract, Inhalation may lead to the formation of oedemas in the respiratory tract - Skin irritation, tissue damage, Causes severe burns - Eye irritation, Causes serious eye.

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

EDTA TETRASODIUM SALT
LD50 (Oral): 630 mg/kg Rat

11. Toxicological information ... / >>

SODIUM TETRAPHENYLBORATE
LD50 (Oral): 288 mg/kg Rat

LITHIUM HYDROXIDE
LD50 (Oral): 210 mg/kg Rat
LC50 (Inhalation mists/powders): > 3.4 mg/l/4h Rat

SKIN CORROSION / IRRITATION

Corrosive for the skin
Classification according to the experimental Ph value

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

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

EDTA TETRASODIUM SALT

LC50 - for Fish	1550 mg/l/96h

SODIUM TETRAPHENYLBORATE

EC50 - for Crustacea	32 mg/l/48h Daphnia magna

LITHIUM HYDROXIDE

LC50 - for Fish	109 mg/l/96h Danio rerio
EC50 - for Crustacea	33.5 mg/l/48h Daphnia magna
EC50 - for Algae / Aquatic Plants	41.62 mg/l/72h Pseudokirchneriella subcapitata
LC10 for Fish	90 mg/l/96h Danio rerio

12. Ecological information ... / >>

Chronic NOEC for Fish	25 mg/l Danio rerio
Chronic NOEC for Crustacea	4 mg/l Daphnia magna

12.2. Persistence and degradability

EDTA TETRASODIUM SALT

Solubility in water	> 10000 mg/l

LITHIUM HYDROXIDE

Solubility in water	> 10000 mg/l

12.3. Bioaccumulative potential

SODIUM TETRAPHENYLBORATE

Partition coefficient: n-octanol/water	6.28 Log Kow

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 ≥ than 0,1%.

12.6. Other adverse effects

LITHIUM HYDROXIDE
Harmful effect due to pH shift. Forms corrosive mixtures with water even if diluted. Neutralisation possible in waste water treatment plants.

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

14.1. UN number

ADR / RID, IMDG, IATA: 1759

14.2. UN proper shipping name

ADR / RID:	CORROSIVE SOLID, N.O.S. (Lithium Hydroxide Mixture)
IMDG:	CORROSIVE SOLID, N.O.S. (Lithium Hydroxide Mixture)
IATA:	CORROSIVE SOLID, N.O.S. (Lithium Hydroxide Mixture)

14. Transport information ... / >>

14.3. Transport hazard class(es)

ADR / RID:	Class: 8	Label: 8	
IMDG:	Class: 8	Label: 8	
IATA:	Class: 8	Label: 8	

14.4. Packing group

ADR / RID, IMDG, IATA: III

14.5. Environmental hazards

ADR / RID:	NO
IMDG:	NO
IATA:	NO

14.6. Special precautions for user

ADR / RID:	HIN - Kemler: 80 Special provision: 274	Limited Quantities: 5 kg	Tunnel restriction code: (E)
IMDG:	EMS: F-A, S-B	Limited Quantities: 5 kg	
IATA:	Cargo: Pass.: Special provision:	Maximum quantity: 100 Kg Maximum quantity: 25 Kg A3, A803	Packaging instructions: 864 Packaging instructions: 860

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):
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.

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:

15. Regulatory information ... / >>

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

Massachussetts:
No component(s) listed.

Minnesota:
1310-66-3 LITHIUM HYDROXIDE

New Jersey:
1310-66-3 LITHIUM HYDROXIDE

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 know to the State of California to cause cancer, reproductive harm or birth defects.

International Regulations
Substances subject to exportation reporting pursuant to Regulation (EU) 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:

H301	Toxic if swallowed.
H302+H332	Harmful if swallowed or if inhaled.
H302	Harmful if swallowed.
H332	Harmful if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.

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
- ATE: Acute Toxicity Estimate
- CAA 112 ® RMP TQ: Risk Management Plan Threshold Quantity (Clean Air Act Section 112®)

16. Other information ... / >>

- CAS: 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: Regulation (EC) 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
- REACH: Regulation (EC) 1907/2006
- 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: Time-weighted average exposure limit
- TWA STEL: Short-term 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

- 6 NYCRR part 597
- Cal/OSHA website
- California Safe Drinking Water and Toxic Enforcement Act
- EPA website
- Hazard Comunication 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
- Massachussetts 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.

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.

16. Other information ... / >>

Changes to previous review:
The following sections were modified:
02.