

AGRICULTURE DIAGNOSTIC LABORATORY
UNIVERSITY OF ARKANSAS, FAYETTEVILLE
RESEARCH SOIL SAMPLES

NAME: Dr. Andrew Sharpley
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SAVE SAMPLES: No
STUDY: Residuals properties
LOCATION: DTAS
COST CENTER #: 0403-91450-24-2399

ADDRESS: DTAS 104

ARRIVED: 8-16-18
LOGGED: 10-05-18
OUT: 10-30-18

NOTE: Samples were dried at 55°C and ground to pass a 2mm sieve.

PROCEDURES : pH (1:2 sample/water ratio) by electrode; Melich 3 Extraction at 1:10 ratio (2 g by weight/20 ml), analysis on Spectro Arcos ICP; C/N by combustion, Elementar varioMAX CN; LOI by muffle furnace, gravimetric measure, 360°

-----mg/kg-----															-----%-----		
LAB #	ID	pH	P	K	Ca	Mg	S	Na	Fe	Mn	Zn	Cu	B	Al	Nitrogen	Carbon	LOI
81416	RM 0	7.6	593	81	31410	4000	2486	897	65	22	1274	105	1281	3.2	0.141	4.12	12.7
81418	WTR 0	7.2	10	80	355	9	87	46	44	15	5.6	0.8	1.4	1799	1.253	9.54	28.3

PROCEDURE: Digest using EPA Method 3050B (1.0 g sample weight, 50 ml total volume), analysis on Spectro Arcos ICP

		-----mg/kg-----																		
LAB #	ID	P	K	Ca	Mg	S	Na	Fe	Mn	Zn	Cu	B	Al							
81416	RM 0	41735	83	102504	5625	5003	1146	258690	1641	45605	2260	3020	689							
81418	WTR 0	1162	1535	1675	820	5782	114	15189	910	62	29	14	147784							

References for analysis methods may be found at following url: <http://aesl.ces.uga.edu/sera6/PUB/MethodsManualFinalSERA6.asp>

SAFETY DATA SHEET

Version 4.10
Revision Date 07/13/2018
Print Date 10/19/2018

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Phosphoric acid

Product Number : 466123
Brand : Aldrich
Index-No. : 015-011-00-6

CAS-No. : 7664-38-2

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

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Corrosive to metals (Category 1), H290
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H290
H314

May be corrosive to metals.
Causes severe skin burns and eye damage.

Precautionary statement(s)

P234
P264
P280

Keep only in original container.
Wash skin thoroughly after handling.
Wear protective gloves/ protective clothing/ eye protection/ face protection.

P301 + P330 + P331
P303 + P361 + P353

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P304 + P340

IF INHALED: Remove victim to fresh air and keep at rest in a position

P305 + P351 + P338	comfortable for breathing. 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/doctor.
P321	Specific treatment (see supplemental first aid instructions on this label).
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P405	Store locked up.
P406	Store in corrosive resistant stainless steel container with a resistant inliner.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	: Orthophosphoric acid
Formula	: H ₃ O ₄ P
Molecular weight	: 98.00 g/mol
CAS-No.	: 7664-38-2
EC-No.	: 231-633-2
Index-No.	: 015-011-00-6
Registration number	: 01-2119485924-24-XXXX

Hazardous components

Component	Classification	Concentration
Phosphoric acid		
	Met. Corr. 1; Skin Corr. 1B; Eye Dam. 1; H290, H314	90 - 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

No data available

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid inhalation of vapour or mist.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Handle and store under inert gas. hygroscopic

Storage class (TRGS 510): 8B: Non-combustible, corrosive hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Phosphoric acid	7664-38-2	TWA	1 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Eye irritation Skin irritation		
		STEL	3 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Eye irritation Skin irritation		

		TWA	1 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	3 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	1 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		PEL	1 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		STEL	3 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance

Form: crystalline

	Colour: white
b) Odour	No data available
c) Odour Threshold	No data available
d) pH	No data available
e) Melting point/freezing point	Melting point/range: 41 - 44 °C (106 - 111 °F) Melting point/range: 40 °C (104 °F) - lit.
f) Initial boiling point and boiling range	158 °C (316 °F) - lit.
g) Flash point	No data available
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	No data available
l) Vapour density	No data available
m) Relative density	1.685 g/mL at 25 °C (77 °F)
n) Water solubility	No data available
o) Partition coefficient: n-octanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong bases, Powdered metals

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Oxides of phosphorus

Other decomposition products - No data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - > 5,000 mg/kg
(OECD Test Guideline 423)

Inhalation: No data available

LD50 Dermal - Rabbit - 2,740 mg/kg

Remarks: Behavioral:Somnolence (general depressed activity). Behavioral:Excitement.

No data available

Skin corrosion/irritation

Skin - Rabbit

Result: Causes burns. - 24 h

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Corrosive

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity

No data available

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: TB6300000

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, May cause cyanosis. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

May be harmful to aquatic organisms due to the shift of the pH.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 3453 Class: 8 Packing group: III
Proper shipping name: Phosphoric acid, solid
Reportable Quantity (RQ): 5000 lbs
Poison Inhalation Hazard: No

IMDG

UN number: 3453 Class: 8 Packing group: III EMS-No: F-A, S-B
Proper shipping name: PHOSPHORIC ACID, SOLID

IATA

UN number: 3453 Class: 8 Packing group: III
Proper shipping name: Phosphoric acid, solid

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Phosphoric acid	7664-38-2	1993-02-16

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Phosphoric acid	7664-38-2	1993-02-16

New Jersey Right To Know Components

	CAS-No.	Revision Date
Phosphoric acid	7664-38-2	1993-02-16

California Prop. 65 Components

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

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Eye Dam.	Serious eye damage
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
Met. Corr.	Corrosive to metals

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.10

Revision Date: 07/13/2018

Print Date: 10/19/2018

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. **HI717AS**
Product name. **Phosphate High Range Reagent A**

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

Intended use. **Determination of Phosphate in Water Samples.**

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

Name. **Hanna Instruments S.R.L.**
Full address. **str. Hanna Nr 1**
District and Country. **457260 loc. Nusfalau (Salaj) Romania**
Tel. **(+40) 260607700**
Fax. **(+40) 260607700**

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

Substance or mixture corrosive to metals, category 1
Skin corrosion, category 1A
Serious eye damage, category 1

May be corrosive to metals.
Causes severe skin burns and eye damage.
Causes serious eye damage.

Hazard pictograms:



Signal words: **Danger**

Hazard statements:

H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.

Precautionary statements:

Prevention:

P280 Wear protective gloves, protective clothing, eye protection and face protection.

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.

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

P310 Immediately call a POISON CENTER or doctor.
P390 Absorb spillage to prevent material damage.
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:**

SULPHURIC ACID

CAS. 7664-93-9 50 ≤ x < 100 Substance or mixture corrosive to metals, category 1 H290, Skin corrosion, category 1A H314

EC. 231-639-5

INDEX. 016-020-00-8

Reg. no. 01-2119458838-20

* 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.

SULPHURIC ACID

SULPHURIC ACID 98%: Irritation and corrosion, Cough, Shortness of breath, Nausea, Vomiting, Diarrhoea, Pain, 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**

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

UNSUITABLE EXTINGUISHING EQUIPMENT

None in particular.

5.2. Special hazards arising from the substance or mixture.

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Do not breathe combustion products.

SECTION 5. Firefighting measures. ... / >>**SULPHURIC ACID**

SULPHURIC ACID 98%: Not combustible, Fire may cause evolution of Sulphur oxides.

5.3. Advice for firefighters.**GENERAL INFORMATION**

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

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

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

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

Block the leakage if there is no hazard.

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

6.2. Environmental precautions.

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

6.3. Methods and material for containment and cleaning up.

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

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

6.4. Reference to other sections.

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

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

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

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

SULPHURIC ACID

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
OEL	EU	0.05			
TLV-ACGIH	-	0.2			
OSHA	USA	1			
CAL/OSHA	USA	0.1		3	
NIOSH	USA	1			

Legend:

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

AMMONIUM HEPTAMOLYBDATE TETRAHYDRATE

Methods for measurement of the workplace atmosphere have to correspond to the requirements of norms UNI EN 482 and UNI EN 689.

SULPHURIC ACID

Methods for measurement of the workplace atmosphere have to correspond to the requirements of norm OSHA ID-113.

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	dense liquid		
Colour	colourless		
Odour	odourless		
Odour threshold.	Not available.		
pH.	<1		
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.	1.400		

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

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)	55,74 %
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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.

SULPHURIC ACID

SULPHURIC ACID 98%: Decomposes at 450°C/842°F, has a corrosive effect, strong oxidising agent.

10.2. Chemical stability.

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

SULPHURIC ACID

SULPHURIC ACID 98%: Stable under standard ambient condition.

10.3. Possibility of hazardous reactions.

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

SULPHURIC ACID

SULPHURIC ACID 98%: Violent reactions possible with: Water, Alkali metals, alkali compounds, Ammonia, Aldehydes, acetonitrile, Alkaline earth metals, alkalines, Acids, alkaline earth compounds, Metals, metal alloys, Oxides of phosphorus, phosphorus, hydrides, halogen-halogen compounds, oxyhalogenic compounds, permanganates, nitrates, carbides, combustible substances, organic solvent, acetylidene, Nitriles, organic nitro compounds, anilines, Peroxides, picrates, nitrides, lithium silicide, iron(III) compounds, bromates, chlorates, Amines, perchlorates, hydrogen peroxide.

10.4. Conditions to avoid.

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

10.5. Incompatible materials.

SULPHURIC ACID

SULPHURIC ACID 98%: Animal/vegetable tissues, Metals. Contact with metals liberates hydrogen gas.

10.6. Hazardous decomposition products.

SULPHURIC ACID

SULPHURIC ACID 98%: Sulphur oxide.

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.

SULPHURIC ACID

SULPHURIC ACID 98% - Skin irritation: causes severe burns - Eye irritation: causes serious eye damage, risk of blindness!

ACUTE TOXICITY.

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

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

SULPHURIC ACID
LD50 (Oral).

2140 mg/kg Rat

SKIN CORROSION / IRRITATION.
Corrosive for the skin.

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.
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.

SULPHURIC ACID	
LC50 - for Fish.	42 mg/l/96h <i>Gambusia affinis</i>
EC50 - for Crustacea.	42.5 mg/l/48h
EC50 - for Algae / Aquatic Plants.	> 100 mg/l/72h

12.2. Persistence and degradability.

SULPHURIC ACID	
Solubility in water.	1000 - 10000 mg/l
Biodegradability: Information not available.	

12.3. Bioaccumulative potential.

Information not available.

12.4. Mobility in soil.

Information not available.

12.5. Results of PBT and vPvB assessment.

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

12.6. Other adverse effects.

SULPHURIC ACID
SULPHURIC ACID 98%: Biological effect: Forms corrosive mixture with water even if diluted, Harmful effect due to pH shift, Endangers drinking-water supplies if allowed to enter soil or water, Discharge into the environment must to be avoid.

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.
Waste transportation may be subject to dangerous goods transport 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: 3264

14.2. UN proper shipping name.

ADR / RID: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHURIC ACID) MIXTURE
IMDG: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHURIC ACID) MIXTURE
IATA: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHURIC ACID) MIXTURE

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: II

14.5. Environmental hazards.

ADR / RID: NO
IMDG: NO
IATA: NO

14.6. Special precautions for user.

ADR / RID:	HIN - Kemler: 80	Limited Quantities: 1 L	Tunnel restriction code: (E)
	Special Provision: -		
IMDG:	EMS: F-A, S-B	Limited Quantities: 1 L	
IATA:	Cargo:	Maximum quantity: 30 L	Packaging instructions: 855
	Pass.:	Maximum quantity: 1 L	Packaging instructions: 851
	Special Instructions:	A3, A803	

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.

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

7664-93-9 SULPHURIC ACID

EPCRA 302 EHS TPQ:

7664-93-9 SULPHURIC ACID

EPCRA 304 EHS RQ:

7664-93-9 SULPHURIC ACID

CERCLA RQ:

7664-93-9 SULPHURIC ACID

EPCRA 313 TRI:

7664-93-9 SULPHURIC ACID

RCRA Code:

No component(s) listed.

CAA 112 (r) RMP TQ:

No component(s) listed.

State Regulations.Massachusetts:

7664-93-9 SULPHURIC ACID

Minnesota:

7664-93-9 SULPHURIC ACID

New Jersey:

7664-93-9 SULPHURIC ACID

New York:

7664-93-9 SULPHURIC ACID

Pennsylvania:

7664-93-9 SULPHURIC ACID

California:

7664-93-9 SULPHURIC ACID

Proposition 65:

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

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

Canadian WHMIS.

Information not available.

SECTION 16. Other information.

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

Met. Corr. 1	Substance or mixture corrosive to metals, category 1
Skin Corr. 1A	Skin corrosion, category 1A
Eye Dam. 1	Serious eye damage, category 1
H290	May be corrosive to metals.
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
- 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

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

- 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.

Changes to previous review:

The following sections were modified:

01 / 02 / 03 / 04 / 05 / 08 / 09 / 10 / 11 / 12 / 13 / 14.

Changed TLVs in section 8.1 for following countries:

EU,

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. **HI717B-0**
Product name. **Phosphate HR Reagent B**

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

Intended use. **Determination of Phosphate in Water Samples.**

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

Name. **Hanna Instruments S.R.L.**
Full address. **str. Hanna Nr 1**
District and Country. **457260 loc. Nusfalau (Salaj) Romania**
Tel. **(+40) 260607700**
Fax. **(+40) 260607700**

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

Serious eye damage, category 1

Causes serious eye damage.

Hazard pictograms:



Signal words: **Danger**

Hazard statements:
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. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor.

Storage:

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

Disposal:

--

2.2. Other hazards.

Additional hazards.

Contact with acids liberates toxic gas.

SECTION 3. Composition/information on ingredients.

3.1. Substances.

Information not relevant.

3.2. Mixtures.

Contains:

Identification.	x = Conc. %.	Classification:
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SODIUM METABISULFITE

CAS. 7681-57-4 50 ≤ x < 77

EC. 231-673-0

INDEX. 016-063-00-2

Reg. no. 01-2119531326-45

Acute toxicity, category 4 H302, Serious eye damage, category 1 H318

* 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. Rinse skin with a shower immediately. Get medical advice/attention immediately. Wash contaminated clothing before using it again.

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

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

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

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

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

SODIUM METABISULFITE

Irritation and corrosion. Risk of serious damage to eyes.

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.

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

SODIUM METABISULFITE

Not combustible. Ambient fire may liberate hazardous vapours. Fire may cause evolution of: Sulphur oxides.

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.

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 the product is flammable, use explosion-proof equipment.

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.

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	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. ... / >>

SODIUM METABISULFITE

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
TLV-ACGIH	-	5			
CAL/OSHA	USA	5			
NIOSH	USA	5			

Legend:

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

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 (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

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.

SECTION 9. Physical and chemical properties.

9.1. Information on basic physical and chemical properties.

Appearance	solid powder
Colour	salmon pink
Odour	pungent
Odour threshold.	Not available.
pH.	4 - 4.5 pH, 17 g/L
Melting point / freezing point.	Not available.
Initial boiling point.	Not applicable.
Boiling range.	Not available.
Flash point.	Not applicable.
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.	2.100
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)	100,00 %
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SECTION 10. Stability and reactivity.

10.1. Reactivity.

SECTION 10. Stability and 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.

SODIUM METABISULFITE

Generates dangerous gases or fumes in contact with: acids. Exothermic reaction with: Oxidizing agents, nitrites, nitrates, Sulphides.

10.4. Conditions to avoid.

Avoid environmental dust build-up.

10.5. Incompatible materials.

Information not available.

10.6. Hazardous decomposition products.

Information not available.

SECTION 11. Toxicological information.

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

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

11.1. Information on toxicological effects.

SODIUM METABISULFITE

Eye irritation, Rabbit, Result: Eye irritation, Causes serious eye damage.

ACUTE TOXICITY.

LC50 (Inhalation - vapours) of the mixture:	Not classified (no significant component).
LC50 (Inhalation - mists / powders) of the mixture:	Not classified (no significant component).
LD50 (Oral) of the mixture:	2000,000 mg/kg
LD50 (Dermal) of the mixture:	Not classified (no significant component).

SODIUM METABISULFITE

LD50 (Oral).	1540 mg/kg Rat
LD50 (Dermal).	> 2000 mg/kg Rat

SKIN CORROSION / IRRITATION.

Does not meet the classification criteria for this hazard class.

SERIOUS EYE DAMAGE / IRRITATION.

Causes serious eye damage.

RESPIRATORY OR SKIN SENSITISATION.

Does not meet the classification criteria for this hazard class.

GERM CELL MUTAGENICITY.

Does not meet the classification criteria for this hazard class.

CARCINOGENICITY.

Does not meet the classification criteria for this hazard class.

REPRODUCTIVE TOXICITY.

Does not meet the classification criteria for this hazard class.

STOT - SINGLE EXPOSURE.

Does not meet the classification criteria for this hazard class.

STOT - REPEATED EXPOSURE.

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

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.

SODIUM METABISULFITE

EC50 - for Crustacea.

89 mg/l/48h Daphnia magna

EC50 - for Algae / Aquatic Plants.

48 mg/l/72h Desmodesmus subspicatus

12.2. Persistence and degradability.

SODIUM METABISULFITE

Solubility in water.

> 10000 mg/l

Biodegradability: Information not available.

12.3. Bioaccumulative potential.

SODIUM METABISULFITE

Partition coefficient: n-octanol/water.

-3.7 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 greater than 0,1%.

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.

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.

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

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):

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:

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.

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

CAA 112 (r) RMP TQ:
No component(s) listed.

State Regulations.

Massachusetts:

7681-57-4 SODIUM METABISULFITE

Minnesota:

7681-57-4 SODIUM METABISULFITE

New Jersey:

7681-57-4 SODIUM METABISULFITE

New York:

No component(s) listed.

Pennsylvania:

7681-57-4 SODIUM METABISULFITE

California:

7681-57-4 SODIUM METABISULFITE

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.

Canadian WHMIS.

Information not available.

SECTION 16. Other information.

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

Acute Tox. 4	Acute toxicity, category 4
Eye Dam. 1	Serious eye damage, category 1
H302	Harmful if swallowed.
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
- CAA 112 ® RMP TQ: Risk Management Plan Threshold Quantity (Clean Air Act Section 112®)
- CAS NUMBER: Chemical Abstract Service Number
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- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%

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

- 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
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- 6 NYCRR part 597
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- IARC website
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- Minnesota Chapter 5206 Department Of Labor and Industry Hazardous Substances, Employee "Right to Know".
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Note for users:

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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 / 02 / 03 / 04 / 05 / 08 / 09 / 10 / 11 / 12 / 13 / 14.

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. **HI713-0**
Product name. **Phosphate LR Reagent**

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

Intended use. **Determination of Phosphate in Water Samples.**

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

Name. **Hanna Instruments S.R.L.**
Full address. **str. Hanna Nr 1**
District and Country. **457260 loc. Nusfalau (Salaj) Romania**
Tel. **(+40) 260607700**
Fax. **(+40) 260607700**

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

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.

Acute toxicity, category 3

Skin corrosion, category 1A

Serious eye damage, category 1

Toxic if inhaled.

Causes severe skin burns and eye damage.

Causes serious eye damage.

Hazard pictograms:



Signal words: **Danger**

Hazard statements:

H331

Toxic if inhaled.

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, protective clothing, eye protection and face protection.

Response:

P303+P361+P353

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water / shower.

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

P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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:	
P404	Store in a closed container.
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:
POTASSIUM DISULFATE		
CAS. 7790-62-7	$50 \leq x < 100$	Acute toxicity, category 3 H331, Skin corrosion, category 1A H314
EC. 232-216-8		
INDEX.		

* 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.

POTASSIUM DISULFATE

Irritation and corrosion, Cough, Shortness of breath. 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

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

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

leakage of the solid product from the container, when it reaches high temperatures or through contact with sources of ignition.

POTASSIUM DISULFATE

Not combustible. Ambient fire may liberate hazardous vapours. Fire may cause evolution of: Sulphur oxides.

5.3. Advice for firefighters.

GENERAL INFORMATION

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

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

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

SECTION 6. Accidental release measures.

6.1. Personal precautions, protective equipment and emergency procedures.

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 the product is flammable, use explosion-proof equipment.

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.

SECTION 7. Handling and storage.

7.1. Precautions for safe handling.

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

7.2. Conditions for safe storage, including any incompatibilities.

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

7.3. Specific end use(s).

Information not available.

SECTION 8. Exposure controls/personal protection.

8.1. Control parameters.

Information not available.

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 (see Directive 89/686/EEC and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

EYE PROTECTION

SECTION 8. Exposure controls/personal 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.

SECTION 9. Physical and chemical properties.

9.1. Information on basic physical and chemical properties.

Appearance	solid powder
Colour	white
Odour	odourless
Odour threshold.	Not available.
pH.	1.2 - 1.5 pH, 18 g/L
Melting point / freezing point.	Not available.
Initial boiling point.	Not applicable.
Boiling range.	Not available.
Flash point.	Not applicable.
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.	2.000
Solubility	soluble in water
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature.	Not available.
Decomposition temperature.	Not available.
Viscosity	Not available.
Explosive properties	Not available.
Oxidising properties	Not available.

9.2. Other information.

Total solids (250°C / 482°F)	100,00 %
------------------------------	----------

SECTION 10. Stability and reactivity.

10.1. Reactivity.

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

10.2. Chemical stability.

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

10.3. Possibility of hazardous reactions.

The powders are potentially explosive when mixed with air.

10.4. Conditions to avoid.

Avoid environmental dust build-up.

POTASSIUM DISULFATE

Exposure to moisture.

10.5. Incompatible materials.

Information not available.

10.6. Hazardous decomposition products.

Information not available.

SECTION 11. Toxicological information.

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

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

11.1. Information on toxicological effects.

POTASSIUM DISULFATE

Acute inhalation toxicity, absorption, Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages: damage of respiratory tract, Lung oedema, Symptoms may be delayed - Skin irritation (in analogy to similar products), Causes severe burns. - Eye irritation (in analogy to similar products), Causes serious eye damage. Risk of blindness!

ACUTE TOXICITY.

LC50 (Inhalation - vapours) of the mixture:	Not classified (no significant component).
LC50 (Inhalation - mists / powders) of the mixture:	0,850 mg/l
LD50 (Oral) of the mixture:	Not classified (no significant component).
LD50 (Dermal) of the mixture:	Not classified (no significant component).

POTASSIUM DISULFATE

LD50 (Oral).	2140 mg/kg Rat
LC50 (Inhalation).	0.85 mg/l/4h Rat

SKIN CORROSION / IRRITATION.

Corrosive for the skin.

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.

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.

POTASSIUM DISULFATE

LC50 - for Fish.	680 mg/l/96h Pimephales promelas
EC50 - for Crustacea.	720 mg/l/48h Daphnia magna

12.2. Persistence and degradability.

Information not available.

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

12.3. Bioaccumulative potential.

Information not available.

12.4. Mobility in soil.

Information not available.

12.5. Results of PBT and vPvB assessment.

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

12.6. Other adverse effects.

Information not available.

SECTION 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.

Waste transportation may be subject to dangerous goods transport 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: 2923

14.2. UN proper shipping name.

ADR / RID: CORROSIVE SOLID, TOXIC, N.O.S. (POTASSIUM DISULFATE) MIXTURE

IMDG: CORROSIVE SOLID, TOXIC, N.O.S. (POTASSIUM DISULFATE) MIXTURE

IATA: CORROSIVE SOLID, TOXIC, N.O.S. (POTASSIUM DISULFATE) MIXTURE

14.3. Transport hazard class(es).

ADR / RID: Class: 8 Label: 8 (6.1)



IMDG: Class: 8 Label: 8 (6.1)



IATA: Class: 8 Label: 8 (6.1)



14.4. Packing group.

ADR / RID, IMDG, IATA: II

14.5. Environmental hazards.

ADR / RID: NO

IMDG: NO

IATA: NO



Hanna Instruments S.R.L.

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

14.6. Special precautions for user.

ADR / RID:	HIN - Kemler: 86	Limited Quantities: 1 kg	Tunnel restriction code: (E)
IMDG:	Special Provision: -	Limited Quantities: 1 kg	
IATA:	EMS: F-A, S-B	Maximum quantity: 50 Kg	Packaging instructions: 863
	Cargo:	Maximum quantity: 15 Kg	Packaging instructions: 859
	Pass.:	A3, A803	
	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.

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:

28300-74-5 POTASSIUM ANTIMONYL TARTRATE

EPCRA 302 EHS TPQ:

No component(s) listed.

EPCRA 304 EHS RQ:

No component(s) listed.

CERCLA RQ:

28300-74-5 POTASSIUM ANTIMONYL TARTRATE

EPCRA 313 TRI:

28300-74-5 POTASSIUM ANTIMONYL TARTRATE

RCRA Code:

No component(s) listed.

CAA 112 (r) RMP TQ:

No component(s) listed.

State Regulations.

Massachusetts:

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

28300-74-5 POTASSIUM ANTIMONYL TARTRATE

Minnesota:

No component(s) listed.

New Jersey:

28300-74-5 POTASSIUM ANTIMONYL TARTRATE

New York:

28300-74-5 POTASSIUM ANTIMONYL TARTRATE

Pennsylvania:

28300-74-5 POTASSIUM ANTIMONYL TARTRATE

California:

28300-74-5 POTASSIUM ANTIMONYL TARTRATE

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.

Canadian WHMIS.

Information not available.

SECTION 16. Other information.

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

Acute Tox. 3	Acute toxicity, category 3
Skin Corr. 1A	Skin corrosion, category 1A
Eye Dam. 1	Serious eye damage, category 1
H331	Toxic if inhaled.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.

LEGEND:

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