

<b>SAFETY DATA SHEET</b>	
Mono Potassium Phosphate	1 of 11

Complying with 1907/2006/EEC Regulation of 18 December 2006 ("REACH Regulation") and REGULATION (EC) No 1272/2008 (CLP)

**Section 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING**

**1.1 Product identifier**

**Product name:** Mono Potassium Nitrate

**Trade names:** Mono potassium phosphate; MKP

**Synonyms:** Phosphoric acid, monopotassium salt; MKP; Potassium dihydrogenorthophosphate; Potassium Phosphate, Monobasic; Potassium Dihydrogen Phosphate

**Chemical formula:**  $\text{KH}_2\text{PO}_4$

**Fertilizer formula:** 0-52-34

**Product type:** Solid

**CAS number:** 7778-77-0

**EC number:** 231-913-4

**REACH registration no(s):**01-2119490224-41

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

**Use of the substance/preparation:** Agriculture – fertilizer, component of mixed fertilizers, nutrient supplement.

Pharmacopoeia- buffering agent, component of fermentation media.

Food processing- buffer agent, mineral nutrient.

Industries- metal, textile, paper.

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

**Company/undertaking identification**

**European Importer:**

Haifa Chemicals Northern Europe  
Generaal de Wittelaan 17, bus 16,  
B-2800 Mechelen, Belgium  
Tel: +32-15-270811  
E-mail: [NorthWestEurope@haifa-group.com](mailto:NorthWestEurope@haifa-group.com)

**United States Importer:**

Haifa North America, Inc.  
307 Cranes Roost Blvd.,  
Suite 2030 Altamonte Springs,  
FL 32701, USA  
Tel/Fax +1-(407) 862-6400,  
Toll-free: +1-(800) 649-4944  
E-mail: [NorthAmerica@haifa-group.com](mailto:NorthAmerica@haifa-group.com)

**Other Countries Importer:**

Haifa Chemicals Ltd.  
P.O.Box 15011, Matam-  
Haifa, 31905, Israel  
Tel: 972-74-7373737  
Fax: 972-74-7373733  
E-mail: [info@haifa-group.com](mailto:info@haifa-group.com)

<b>SAFETY DATA SHEET</b>	
Mono Potassium Phosphate	2 of 11

E-mail address of person responsible for this SDS: [info@haifa-group.com](mailto:info@haifa-group.com)

**1.4 Emergency telephone number**

Emergency telephone number (during hours of operation): +972-74-7373737

CHEMTREC (U.S.): 1-800-424-9300

**Section 2. HAZARDS IDENTIFICATION**

**2.1 Classification of the substance or mixture**

Classification in accordance to Regulation(EC) No. 1272/2008 (CLP/GHS)

Ingredient name	GHS Classification
Monopotassium phosphate	-

Classification according to Directive 67/548/EEC (DSD) or 1999/45/EC

Ingredient name	EU Classification
Monopotassium phosphate	-

See section 16 for full text of the R phrases or H statements declared above.

See section 11 for more detailed information on health effects and symptoms.

**2.2 Label elements**

Labeling in accordance with Regulation 1272/2008 (CLP)

Hazard pictograms: Not required

Signal word: Not classified

Hazard statements: Not classified

Precautionary Statements: Not required

**2.3 Other hazard**

Substance meets the criteria for BBT according to Regulation (EC) No. 1907/2006, Annex XIII:

Not applicable

Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII:

Not applicable

Other hazard which do not result in classification:

Not applicable

<b>SAFETY DATA SHEET</b>	
Mono Potassium Phosphate	3 of 11

### Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Substance/preparation:** Mono-constituent substance

Product/ Ingredient name	Identifiers	%	EU Classification	GHS Classification
Mono potassium phosphate	CAS number: 7778-77-0 EC number: 231-913-4 REACH :01-2119490224-41	100	-	-

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.**

**Occupational exposure limits, if available, are listed in section 8.**

### Section 4. FIRST AID MEASURES

#### 4.1 Description of first aid measures

- Eyes contact:** In case of contact with eyes, rinse immediately with plenty of water. Get medical attention if irritation occurs.
- Skin contact:** Avoid prolonged or repeated contact with skin. After handling, always wash hands thoroughly with soap and water. Get medical attention if irritation develops.
- Inhalation:** Avoid breathing dust. If inhaled, remove to fresh air.
- Ingestion:** If large quantities of this material are swallowed, call a physician immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

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

##### **Potential acute health effects**

Inhalation: Dusts may cause coughing and sneezing.

Ingestion: Ingestion of large quantities may cause gastrointestinal irritation, vomiting and diarrhea.

Skin contact: The material is none irritating to intact skin when applied topically to rabbits.

Eyes contact: Slight eye irritant in male and female rabbits.

##### **Over-exposure sign/symptoms:**

Eyes contact: No special data

Inhalation: Coughing and sneezing

Ingestion: No special data

Skin contact: No special data

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

**Notes to physician:** In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposure person may need to be kept under medical surveillance for 48 hours.

**Special treatments:** No specific treatment

<b>SAFETY DATA SHEET</b>	
Mono Potassium Phosphate	4 of 11

## **Section 5: Fire-Fighting Measures**

### **5.1 Extinguishing media**

Suitable: Use an extinguishing agent suitable for surrounding fire.

Not suitable: N/A

### **5.2 Special hazards arising from the substance or mixture**

Non-combustible.

Hazardous thermal decomposition products: Under fire - oxides of phosphorous, oxides of potassium

### **5.3 Advice for firefighters**

**Special protective equipment for fire fighters:** Fire-fighters should wear appropriate protective equipment and self contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

**Remark:** Move containers from fire area if possible to do so without risk.

## **Section 6: Accidental Release Measures**

### **6.1 Personal precautions, protective equipment and emergency procedures**

Wear protective clothing. Ventilate area of spill.

### **6.2 Environmental precautions**

Do not let this chemical enter the environment. Avoid contact of spilt material and runoff with soil and surface waterways.

### **6.3 Methods and materials for containment and cleaning up**

Small spill: Use a tool to scoop up solid material and place into an appropriate labeled waste container. Do not mix with sawdust or other combustible material. Avoid creating dusty conditions and prevent wind dispersal. Keep out of waterways.

Large spill: As for small spill

**Personal Protection in Case of Large Spill:** Safety glasses. Full suit. Dust respirator. Boots. Gloves. A self- contained breathing apparatus should be used to avoid inhalation of the product.

### **6.4 Reference to other sections**

See Sections 1 for emergency contact information

See Section 8 for information on a appropriate personal protective equipment

See Section 13 for additional waste treatment information

## **Section 7: Handling and Storage**

### **7.1 Precautions for safe handling**

**Handling:** Avoid creating dusty conditions and prevent wind dispersal. Avoid all possible sources of ignition (spark or flame). Avoid contamination by any source including metals, dust and organic materials.

#### **Hygiene Measures:**

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also section 8 for additional information measures.

<b>SAFETY DATA SHEET</b>	
<b>Mono Potassium Phosphate</b>	5 of 11

**7.2 Conditions for safe storage, including any incompatibilities**

**Storage:** Store and use away from heat, sparks, open flame or any other ignition source. Avoid contact with combustible materials. Prevent moisture pick-up in handling and storage.

Packaging materials Recommended : Use original container.

**7.3 Specific end use(s):** N/A

**Section 8: Exposure Control / Personal Protection**

**8.1 Control parameters**

**Occupational exposure limit values:** N/A

**Derived effects levels:**

Recommended occupational and consumer exposure limit values (following from the preformed CSA):

Exposure pattern	Derived No Effect Level (DNEL)	
	Workers	General population
Oral	N/A	N/A
Dermal	N/A	N/A
Inhalation	4.07 mg/m <sup>3</sup>	3.04 mg/m <sup>3</sup>

**8.2 Exposure controls**

**Engineering Measures**

Use process enclosures, local exhaust ventilation, or others engineering controls to keep airborne levels below recommend exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. **Person Protective measures**

**Occupational exposure controls:**

Respiratory protection: Disposable particulate mask. Be sure to use an approved/certified or equivalent. Wear appropriate respirator when ventilation is inadequate.

Hand protection: Wear protective disposable vinyl gloves to prevent skin exposure.

Eye protection: Wear protective safety glasses.

Skin protection: Wear appropriate long-sleeved clothing to minimize skin contact.

Hygiene measures: Keep away from foodstuffs and beverages. Do not eat, drink or smoke during work time. Remove soiled or soaked clothing immediately. Clean skin thoroughly after work; apply skin cream. During use, provide suitable ventilation.

**Environmental exposure controls:** Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

<b>SAFETY DATA SHEET</b>	
<b>Mono Potassium Phosphate</b>	6 of 11

## Section 9: Physical and Chemical Properties

### **9.1 Information on basic physical and chemical properties**

Appearance: Solid (crystalline or granular powder), White or colourless

Odour: Odorless

Odour threshold: Odorless

pH: 4.2 to 4.9 (Conc.(%w/w): 1%) [Acidic]

Initial boiling point/boiling range: > 723°K

Flash point: Not applicable

Evaporation rate: Not volatile (butyl acetate=1)

Flammability: Not flammable

Upper/lower flammability or explosive limits:

Vapor pressure:  $4.5 \times 10^{-15}$  Pa at 25°C- Not Volatile

Vapor density: Not volatile

Relative Density: 2.33 at 25.1±0.5°C (water=1)

Solubility(ies): Water solubility- 208 g/L at 20°C±0.5°C- very soluble

Partition coefficient Octanol/Water: The product is more soluble in water; log(octanol/water)<1

Auto-ignition temperature: Not applicable

Decomposition temperature: > 175°C (347°F) - release of water of constitution, becomes polyphosphates

Viscosity: Not viscous

Explosive properties: Not explosive

Oxidizing properties: Not oxidizer

### **9.2 Other information:**

Melting point/Freezing point: > 252.6°C

Molecular weight: 136.09

VOC: Not an organic compounds

Apparent (Bulk) Density: 0.8 – 1.2 g/cm<sup>3</sup>

Miscibility: Not applicable

Fat solubility: Not applicable

Conductivity: Not applicable

Gas group: Not applicable

## Section 10: Stability and Reactivity

### **10.1 Reactivity**

No specific test data related to reactivity available for this product or its ingredients

### **10.2 Chemical stability**

The product is stable under normal handling and storage conditions described in Section 7. Reacts with acids and alkalis

### **10.3 Possibility of hazardous reactions**

Under normal conditions of storage and use, hazardous reactions will not occur.

### **10.4 Conditions to avoid**

Extreme humidity, excess heat.

### **10.5 Incompatible materials**

Strong oxidizing agents, strong bases, moisture.

<b>SAFETY DATA SHEET</b>	
<b>Mono Potassium Phosphate</b>	7 of 11

**10.6 Hazardous Decomposition products:**

Under fire- oxides of phosphorous, oxides of potassium.

**Section 11: Toxicological Information**

**11.1 Information on toxicological effects**

**Acute toxicity:**

Product/ingredient name	Test	Species	Dose
Monopotassium phosphate	LD50, oral	Rat	> 2000 mg/kg
	LD50, dermal	Rabbit	> 2000 mg/kg

**Irritation and corrosivity:**

Inhalation: Dusts may cause coughing and sneezing.

Ingestion: Ingestion of large quantities may cause gastrointestinal irritation, vomiting and diarrhea.

Skin contact: The material is none irritating to intact skin when applied topically to rabbits.

Eyes contact: Slight eye irritant in male and female rabbits .

**Sensitization:** Not sensitizing

**Chronic toxicity:**

Carcinogenicity: This product does not contain any substances that are considered by IARC, NTP, OSHA, EU or ACGIH to be "probable" or "suspected" human carcinogens.

Mutagenicity: Sodium and potassium phosphates are routinely used in the nutrient broths that support bacterial colonies in the laboratory and as such bacteria are constantly exposed to these inorganic phosphates. In addition, sodium orthophosphates are also found in the metabolic activation mixture (e.g. S9-mix) which is used in an AMES test to determine whether a test chemical can be metabolized within the body to produce a compound that may be genotoxic. The constant exposure of bacteria to these materials suggests that they pose no inherent risk of genotoxicity.

Reproductive toxicity: Under the conditions of the study on potassium dihydrogenorthophosphate, the test material administered to pregnant rats for 10 days up to a dose level of 282 mg/kg bw showed no maternal or developmental toxicity. The NOAEL for both maternal and fetotoxicity is > 282 mg/kg bw. When the test material was administered to pregnant mice for 10 days up to a dose level of 320 mg/kg bw showed no maternal or developmental toxicity. The NOAEL for both maternal and fetotoxicity is > 370 mg/kg bw. It is not considered to be scientifically justified to further investigate the effects of potassium dihydrogenorthophosphate on developmental or maternal toxicity and as such no classification is proposed for this endpoint and no further studies are deemed necessary.

Specific target organ toxicity (single exposure): Not applicable.

Specific target organ toxicity (repeated exposure): Not applicable.

Aspiration hazard: Not applicable.

<b>SAFETY DATA SHEET</b>	
<b>Mono Potassium Phosphate</b>	8 of 11

**Other effects**

Over exposure signs/symptoms: No specific data.

Target organs: No specific data.

**Toxicokinetics (absorption, metabolism, distribution and elimination):**

A particle size distribution study has shown approximately > 50% of the particle is less than 100 µm (inhalable). As the substance is not lipophilic it would not have the potential to be absorbed directly across the respiratory tract epithelium. However the very high water solubility of the substances and the low molecular weights does indicate that it has the potential to be absorbed through aqueous pores or be retained in the mucus. Particles deposited on the mucociliary blanket will be swallowed in the mouth (ingestion). Therefore absorption from the gastrointestinal tract will contribute to the total systemic burden of the substance that is inhaled.

Orthophosphates contain ionisable groups which may aid gastrointestinal tract absorption.

The group 1i substances are very highly water soluble (>10000 mg/l) therefore should readily dissolve into the gastrointestinal fluid. Also small molecular weights (120-214), may aid the substance to pass through aqueous pores or to be carried through the epithelium barrier by the bulk passage of water.

The very high water solubility suggests that the substance is too hydrophilic to cross the lipid rich environment of the striatum corneum. Also the molecular weight of >100 and the extremely hydrophilic nature of the substance leads to the conclusion that dermal uptake of the substance will be minimal.

The results of the acute oral toxicity study in the rat showed no evidence of significant systemic toxicity; even at relatively high dose levels. This suggests that the test material is either of low toxicity or there is little absorption of the material following oral ingestion.

**Section 12: Ecological Information**

**12.1 Toxicity**

Substance name	Toxicity to fish	Toxicity to crustaceans	Toxicity to algae	Toxicity to other aquatic plants	Other toxicity data (birds, bees, plants etc.)
Monopotassium phosphate	LC50/96h (Rainbow trout) > 100 mg/L	EC50/48h (Daphnia magna) > 100 mg/L	EC50/75h (algae) > 100 mg/L  EC50 (48 h): 300 mg/L		

**Predicted effect concentrations**

**Exposure controls**

Product/ Ingredient name	Type	Compartment Detail	Value	Method Detail
Monopotassium phosphate	PNEC	Fresh water	0.05	Assessment Factors
	PNEC	Marine	0.005 mg/L	Assessment Factors



<b>SAFETY DATA SHEET</b>	
<b>Mono Potassium Phosphate</b>	9 of 11

**12.2 Persistence and Degradability**

Not applicable, since inorganic substance.

**12.3 Bioaccumulative potential**

Substance name	LogPow	BCF	Potential
Monopotassium phosphate	N/A	N/A	The potential for bioaccumulation consider to be minimal.

**12.4 Mobility in soil**

Soil/water partition coefficient (Koc) : N/A

**Mobility:** Soluble in water.

**12.5 Results of PBT and vPvB assessment**

Not applicable

**12.6 Other adverse effects**

Substances which have an unfavorable influence on the oxygen balance and can be measured using parameters such as BOD, COD, etc.: Absent

Substances, which contribute to eutrophication: Phosphates, 52% as P<sub>2</sub>O<sub>5</sub>

**Section 13: Disposal Considerations**

**13.1 Waste treatment methods**

**Provisions relating to waste:** Directive 2008/98/EC on waste, of 19 November, 2008: Depending on branch of industry and production process, also other EURAL codes may be applicable  
06 03 14: solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13

**Product**

**Methods of disposal:** Waste must be disposed of in accordance with federal, state and local environmental control regulations.

**Hazardous waste:** N/A.

**Packing**

Empty containers should be taken for local recycling, recovery or waste disposal.

<b>SAFETY DATA SHEET</b>	
Mono Potassium Phosphate	10 of 11

#### Section 14: Transport Information

##### International transport regulations

Regulatory Information	14.1 UN number	14.2 Proper shipping name	14.3 Classes	14.4 Packing group	14.5 Environmental hazard	14.6 Special precautions for user	Additional information
ADR/RID Class	NOT regulated	-	-	-	-	-	
ADNR Class	NOT regulated	-	-	-	-	-	
IMDG class	NOT regulated	-	-	-	-	-	
IATA class	NOT regulated	-	-	-	-	-	

##### 14.7 Transport to bulk according to Annex II of MARPOL 79/78 and the IBC Code

Not applicable

#### Section 15: Regulatory Information

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

EU Directives 67/548/EEC and 1999/45/EC (including amendments) and take into account the intended product use

EU Regulation(EC) No.1907/2006 (REACH), No 1272/2008 (CLP)

##### 15.2 Chemical safety assessment

In accordance with REACH article 14, a Chemical Safety Assessment has been carried out for this substance.

#### Section 16: Other Information

**Full text of R-phrases referred to in sections 2 and 3:** N/A

**Safety phrases:** N/A

**Full text of Hazards Statements referred to in sections 2 and 3:** N/A

**Precautionary Statements:** N/A

**Training advice:** Before using/handling the product one must read carefully present MSDS.

**Recommended restriction:** N/A

<b>SAFETY DATA SHEET</b>	
<b>Mono Potassium Phosphate</b>	11 of 11

Key Legend Information:

ACGIH- American Conference of Governmental Industrial Hygienists

OSHA- Occupational Safety and Health Administration

NTP- National Toxicology program

IARC- International Agency for Research on Cancer

ND- Not Determined

N/A- Not available

R-phrases- Risk phrases

S-phrases- Safety phrases

Date of issue: 30<sup>th</sup> November 2010

Date of revision: 19<sup>th</sup> December 2010

Version no. 1

To the best of our knowledge the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.