



## Material Safety Data Sheet / Safety Data Sheet

### Monoammonium Phosphate

#### Section 1. Chemical Product and Company Identification

<b>Product name</b>	: Monoammonium Phosphate	<b>Manufactured/supplied</b>
<b>Trade name</b>	: Monoammonium Phosphate; Multi-MAP; Hi-MAP.	Haifa Chemicals Ltd. P.O. Box 10809, Haifa Bay 26120, Israel Tel: 972-4-8469961 Fax: 972-4-8469955 Email: industrial@haifachem.co.il
<b>Synonym</b>	: Ammonium phosphate, monoammonium phosphate, ammonium phosphate monobasic, MAP.	
<b>Fertilizer formula</b>	: 12-61-0	
<b>Chemical formula</b>	: $\text{NH}_4\cdot\text{H}_2\text{PO}_4$	
<b>Material uses</b>	: Agriculture - fertilizer, component of mixed fertilizers, nutrient supplement. Food processing - buffer, dough conditioner, leavener, nutrient. Industries - ceramics, textile, pulp and paper. Flame-proofing and fire extinguisher agent.	
<b>Emergency telephone number</b>	: 972-4-8469603/4	

#### Section 2. Hazards identification

<b>Physical state</b>	: Solid. (Crystals.)
<b>Emergency overview</b>	: Warning! CAUSES EYE AND SKIN IRRITATION. Avoid contact with skin and clothing. Wash thoroughly after handling.
<b>Routes of entry</b>	: Dermal contact. Eye contact. Inhalation. Ingestion.
<b>Potential acute health effects</b>	
<b>Eyes</b>	: Irritating to eyes.
<b>Skin</b>	: Practically non-toxic in contact with skin. Irritating to skin.
<b>Inhalation</b>	: No known significant effects or critical hazards.
<b>Ingestion</b>	: Practically non-toxic if swallowed.
<b>Potential chronic health effects</b>	: Carcinogenic effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH. Mutagenic effects: Not applicable. Teratogenic Effects: Not applicable.
<b>Medical conditions aggravated by over-exposure</b>	: Repeated skin exposure can produce local skin destruction or dermatitis. Repeated exposure of the eyes to a low level of dust can produce eye irritation.
<b>Over-exposure signs/symptoms</b>	: Ingestion may cause gastrointestinal irritation, vomiting and diarrhea.
<b>See toxicological information (section 11)</b>	

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### Section 3. Composition, Information on Ingredients

	CAS number
<b>United States</b> Monoammonium Phosphate	7722-76-1

This material is classified as hazardous under OSHA regulations.  
See Chapters 8, 11 and 14 for details.

### Section 4. First aid measures

<b>Eye contact</b>	: Check for and remove any contact lenses. In case of contact with eyes, rinse immediately with plenty of water. Get medical attention if symptoms occur.
<b>Skin contact</b>	: Wash with soap and water. Get medical attention if symptoms occur.
<b>Inhalation</b>	: If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms appear.
<b>Ingestion</b>	: Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
<b>Notes to physician</b>	: No specific antidote. Medical staff must contact Poison Control Center.

### Section 5. Fire fighting measures

<b>Flammability of the product</b>	: Not combustible.
<b>Products of combustion</b>	: Not combustible. Thermal decomposition products are dependent on temperature conditions. These products are water, ammonia and oxides of phosphorus.
<b>Fire-fighting media and instructions</b>	: Use an extinguishing agent suitable for the surrounding fire.
<b>Special protective equipment for fire-fighters</b>	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
<b>Special remarks on fire hazards</b>	: Non-combustible.
<b>Special remarks on explosion hazards</b>	: Non-explosive under normal conditions.

### Section 6. Accidental release measures

<b>Personal precautions</b>	: Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.
<b>Environmental precautions</b>	: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
<b>Methods for cleaning up</b>	: If emergency personnel are unavailable, vacuum or carefully scoop up spilled material and place in an appropriate container for disposal by incineration. Avoid creating dusty conditions and prevent wind dispersal.

### Section 7. Handling and storage

<b>Handling</b>	: Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.
<b>Storage</b>	: Keep container tightly closed. Keep container in a cool, well-ventilated area.

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## Section 8. Exposure controls, personal protection

**Engineering controls** : Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

### Personal protection

#### Eyes

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.  
Recommended: Safety glasses.



#### Respiratory

: Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.



Recommended: Disposable particulate mask

#### Hands

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.: Disposable vinyl gloves.



#### Skin/Body

: Not applicable.

**Personal protection in case of a large spill** : Safety glasses, goggles or face shield. Impervious gloves. Full suit. Boots. Wear MSHA/NIOSH-approved self-contained breathing apparatus or equivalent and full protective gear.

### Product name

### Exposure limits

#### United States

Monoammonium Phosphate

#### ACGIH TLV (United States).

TWA: 5 mg/m<sup>3</sup> 8 hour/hours. Form: Dust

Consult local authorities for acceptable exposure limits.

## Section 9. Physical and chemical properties

**Physical state** : Solid. (Crystals.)

**Color** : White.

**Odor** : Odorless. (Slight.)

**Molecular weight** : 115.03 g/mole

**Molecular formula** : NH<sub>4</sub>.H<sub>2</sub>PO<sub>4</sub>

**pH** : 4 to 5 (Conc. (% w/w): 1) [Acidic.]

**Melting/freezing point** : 190°C (374°F)

**Bulk density** : 0.9 to 1.1 g/cm<sup>3</sup>

**Vapor pressure** : <0.1 kPa (<1 mm Hg) (at 20°C)

**Vapor density** : Non-volatile.

**Volatility** : Non-volatile.

**Odor threshold** : Odorless.

**Evaporation rate** : Non-volatile.

**VOC** : Not an organic solvent.

**Viscosity** : Non-viscous substance.

**LogK<sub>ow</sub>** : The product is more soluble in water; log(octanol/water) <1.

**Ionicity (in water)** : Amphoteric.

**Solubility** : Partially soluble in cold water, hot water, 18% at 0°C (32°F); 27% at 20°C (68°F); 36% at 40°C (104°F).

## Section 10. Stability and reactivity

- Stability and reactivity** : The product is stable.
- Conditions of instability** : Contact with alkaline compounds, temperature >170°C (338°F).
- Incompatibility with various substances** : Reactive with alkalis.
- Hazardous decomposition products** : Ammonia generation under alkaline conditions; water, ammonia, oxides of phosphorous under high temperature.
- Hazardous polymerization** : Will not occur.

## Section 11. Toxicological information

### Toxicity data

<u>Ingredient name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
Monoammonium Phosphate	LD50	>2000 mg/kg	Oral	Rat
	LD50	>5000 mg/kg	Dermal	Rabbit

### Acute Effects

- Eyes** : Irritating to eyes.
- Skin** : Practically non-toxic in contact with skin. Irritating to skin.
- Inhalation** : No known significant effects or critical hazards.
- Ingestion** : Practically non-toxic if swallowed.
- Potential chronic health effects** : Carcinogenic effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.  
Mutagenic effects: Not applicable.  
Teratogenic Effects: Not applicable.
- Special remarks on chronic effects on humans** : Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.

## Section 12. Ecological information

- Biodegradable/OECD** : Not applicable, since inorganic substance. Substances, which have an unfavorable influence on the oxygen balance and can be measured using parameters such as BOD, COD, etc.
- Mobility** : Soluble in water.
- Persistence/degradability** : Not applicable, since inorganic substance.
- Other adverse effects** : Substances, which contribute to eutrophication: Phosphates.

## Section 13. Disposal considerations

- Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Consult your local or regional authorities.

## Section 14. Transport information

### Classification

**DOT/ IMDG/ IATA**: Not regulated.

### Label

### Additional information

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## Section 15. Regulatory information

### United States

- HCS Classification** : Irritating material
- U.S. Federal regulations** : TSCA 8(b) inventory: Monoammonium Phosphate  
 SARA 302/304/311/312 extremely hazardous substances: No products were found.  
 SARA 302/304 emergency planning and notification: No products were found.  
 SARA 302/304/311/312 hazardous chemicals: No products were found.  
 SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.  
 Clean Water Act (CWA) 307: No products were found.  
 Clean Water Act (CWA) 311: No products were found.  
 Clean Air Act (CAA) 112 accidental release prevention: No products were found.  
 Clean Air Act (CAA) 112 regulated flammable substances: No products were found.  
 Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

### SARA 313

	Product name	CAS number	Concentration
<b>Form R - Reporting requirements</b>	: Monoammonium Phosphate	7722-76-1	70 - 100
<b>Supplier notification</b>	: Monoammonium Phosphate	7722-76-1	70 - 100

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

**State regulations** : No products were found.

### International regulations

**International lists** : All components listed are listed on major international inventories or exempted from being listed in Australia (AICS), Europe (EINECS/ELINCS), Korea (TCCL), Japan (METI/MOL), Philippines (RA6969).

## Section 16. Other information

**Label requirements** : CAUSES EYE AND SKIN IRRITATION.

**Hazardous Material Information System (U.S.A.)** :

Health	1
Fire hazard	0
Reactivity	0
Personal protection	C

**National Fire Protection Association (U.S.A.)** :



**References** : ANSI Z400.1, MSDS Standard, 2004. - Manufacturer's Material Safety Data Sheet. - 29CFR Part1910.1200 OSHA MSDS Requirements. - 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG.

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### Notice to reader

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.