



MAP (Monoammonium Phosphate)

## Material Safety Data Sheet

### Section I – Product

PotashCorp MSDS No.: 5 **Product Name: MAP (Monoammonium Phosphate)**

ERG No.: N/A

**Common Name:** Monoammonium Phosphate **Formula:**  $(\text{NH}_4)\text{H}_2\text{PO}_4$  **Synonym:** MAP **Uses:**  
Agricultural

### Section II – Composition / Information On Ingredients

#### Exposure Limits

**Chemical Name CAS No. OSHA PEL TLV – TWA STEL CEIL**

**mg/m<sup>3</sup> ppm mg/m<sup>3</sup> ppm mg/m<sup>3</sup> ppm mg/m<sup>3</sup> ppm**

**% by**

**Weight**

Monoammonium

Phosphate, as  $\text{P}_2\text{O}_5$  \*\*\* 7722-76-1 15/5 \* 10/3 \*\* 52

Total Nitrogen, as N \*\*\* 11

Fluorides, as F 2.5 2.5 0.6

\* For particulates not otherwise regulated, standard is 15 mg/m<sup>3</sup> total dust and 5 mg/m<sup>3</sup> for respirable fraction.

\*\* For particulates (insoluble) not otherwise specified, adopted value is 10mg/m<sup>3</sup> for inhalable fraction and 3 mg/m<sup>3</sup> for respirable fraction.

\*\*\* Product contains monoammonium phosphate as essential ingredient with small amounts of diammonium phosphate, ammonium sulfate, urea, and aluminum/calcium/iron/magnesium phosphate compounds.

### Section III – Hazard Identification

#### Potential Acute Health Effects:

**Eyes and Skin:** Contact may cause eye irritation and prolonged contact with skin may cause some irritation.

#### Inhalation:

High dust concentrations of air-borne material may cause irritation of the nose and upper respiratory tract with symptoms such as sore throat and coughing. Inhalation of decomposition gases can cause irritation and corrosive effects on the respiratory system. Some lung effects may be delayed.

**Ingestion:** Ingestion of small quantities are unlikely to cause toxic effect. Large quantities may give rise to gastro-intestinal disorders.

#### Potential Chronic Health

**Effects:** No adverse effects are known.

**CARCINOGENICITY LISTS IARC Monograph:** No **NTP:** No **OSHA:** No

Health Reactivity

Specific Hazard

#### NFPA Code

Product Name: MAP (Monoammonium Phosphate)

## Section IV – First Aid Measures

**Eyes:** Immediately flush eyes (holding eyelids apart) with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.

**Skin:** Wash skin thoroughly with soap and water.

**Ingestion:** Do not induce vomiting. Drink large amounts of water (or milk if available) to dilute stomach contents. Small quantities are unlikely to cause toxic effect. Get medical attention if a large amount of MAP is ingested (small children, more than 50g).

**Inhalation:** Remove from source of exposure to dusts. Obtain medical attention if the effects occur. Persons who have inhaled decomposition gases (e.g. in a fire) should obtain immediate medical attention.

## Section V – Fire Fighting Measures

**Flash Point:** Non-flammable **Autoignition Temperature:** Not Applicable

**Lower Explosive Limit:** Not Applicable **Upper Explosive Limit:** Not Applicable

**Unusual Fire and Explosion**

**Hazards:**

MAP is a non-flammable inorganic salt and is not flammable however when strongly heated, MAP will decompose giving off ammonia.

**Extinguishing Media:** Chemical type foam, CO<sub>2</sub> (Carbon Dioxide), dry chemical, water fog.

**Special Firefighting**

**Procedures and Equipment:**

Keep personnel removed from and upwind of fire. Wear full fire-fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

## Section VI – Accidental Release Measures

**Small Spill:**

Spillage should be swept up and placed in chemical waste container to be disposed at an appropriate waste disposal

facility according to current applicable laws and regulations and product characteristics at time of disposal.

Adequate

ventilation is required.

**Large Spill:**

Contain spill and transfer the material to appropriate containers for reclamation or disposal. Dispose of material at an

appropriate waste disposal facility according to current applicable laws and regulations and product characteristics at

time of disposal. Adequate ventilation is required.

**Release Notes:**

If spill could potentially enter any waterway, including intermittent dry creeks, contact the local authorities. If in the

U.S., contact the US COAST GUARD NATIONAL RESPONSE CENTER toll free number 800-424-8802. In case of

accident or road spill notify: CHEMTREC IN USA at 800-424-9300; CANUTEC in Canada at 613-996-6666 CHEMTREC in other countries at (International code)+1-703-527-3887.

**Comments:**

See Section XIII for disposal information and Section XV for regulatory requirements. Large and small spills may

have a broad definition depending on the user's handling system. Therefore, the spill category must be defined at

the point of release by technically qualified personnel.

## Section VII – Handling and Storage

**Ventilation:** Use with adequate ventilation.

**Handling:** Use appropriate personal protective equipment as specified in Section VIII. Avoid excessive generation of dust and avoid

unnecessary exposure to the atmosphere to prevent moisture pick-up.

**Storage:** Store in dry, well ventilated area, away from potential sources of heat and fire.

## Section VIII – Exposure Controls/ Personal Protection

**Engineering Controls:** Avoid high dust concentration and provide ventilation where necessary.

### Personal Protection:

**Eye Protection:** Wear tight fitting goggles in dusty areas to reduce dust exposure to the eyes.

**Protective Clothing:** Wear suitable gloves when handling this product over long periods. If skin irritation occurs, wear long sleeves.

### Respiratory Protection:

Wear NIOSH approved respiratory protective equipment when exposure exceeds the OSHA nuisance dust standard of 15 mg/m<sup>3</sup> or the ACGIH nuisance dust limit of 10 mg/m<sup>3</sup> for the eight hour time weighted average. When stored in closed area, a self-contained breathing apparatus is required to protect against ammonia gas.

**Other Protective Clothing or Equipment:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Product Name: MAP (Monoammonium Phosphate)

## Section IX – Physical and Chemical Properties

**Appearance/Color/Odor:** Odorless granular solid with color ranging from gray to green **Boiling Point:** Decomposes

**Melting Point/Range:** 190°C **Boiling Point Range:** Not Applicable

**Solubility in Water:** 328 g/L @ 20°C **Vapor Pressure (mmHg):** <1 mm Hg @ 20°C

**Specific Gravity:** 1.8 @ 25°C **Molecular Weight:** 115

**Vapor Density:** Not Available % **Volatiles:** Not Available

**Bulk Density:** 60-64 lbs/ft<sup>3</sup> (Loose)

65-72 lbs/ft<sup>3</sup> (Tamped) **Evaporation Rate:** Not Available

**pH:** 4.2 in 0.2 M solution **Freezing Point:** Not Available

**Viscosity:** Not Applicable **Density:** Not Available

## Section X – Stability and Reactivity

**Stability:** This product is stable under normal conditions of storage, handling and use.

**Hazardous Polymerization:** Will not occur

**Conditions to Avoid:** Welding or hot work on equipment or plant which may have contained fertilizer should not be done

without first washing thoroughly to remove all fertilizer.

### Materials to Avoid

**(Incompatibles):** Alkalis, strong acids, copper and its alloys.

### Hazardous Decomposition

**Products:** Ammonia is released upon reaction with strong bases or from thermal decomposition.

## Section XI – Toxicological Information

### Significant Routes of

**Exposure:** Eyes, Skin, Respiratory System, Digestive Tract

**Acute Oral Toxicity:** (Rat) OECD Guideline 425: LD<sub>50</sub> > 2,000 mg/kg bw

**Acute Inhalation Toxicity:** No data available

**Acute Toxicity: Other Routes:** No data available

**Acute Dermal Toxicity:** (Rat) OECD Guideline 402: LD<sub>50</sub> > 5,000 mg/kg bw.

**Repeated Dose Toxicity:** No data available

### Toxicity to Animals:

**Eye & Skin Irritation/Corrosion:** Mild Irritant

Low to very low toxicity based on the standard Federal Insecticide Fungicide and Rodenticide Act (FIFRA) ratings for mammals.

**Developmental Toxicity/Teratogenicity:** No data available

**Bacterial Genetic Toxicity In-Vitro:**

**Gene Mutation:** No data available

**Non-Bacterial Genetic Toxicity In-Vitro:**

**Chromosomal Aberration:** No data available

**Toxicity to Reproduction:** No data available

**Special Remarks on****Toxicity to Animals:**

**Carcinogenicity:** No data available

**Other Effects on Humans:** Phosphate compounds such as MAP are Generally Recognized As Safe (GRAS) by FDA for use as a food additive for both human food and ruminant feed according to prescribed conditions.

**Special Remarks on**

**Chronic Effects on Humans** No data available

**Special Remarks on Other**

**Effects on Humans:** No data available

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## Section XII – Ecological Information

**EPA Ecological Toxicity rating :**

Slightly toxic to practically non-toxic to aquatic organisms based on the Federal Insecticide Fungicide and Rodenticide Act (FIFRA) acute toxicity ratings.

**Acute Toxicity to Fish:** (*Oncorhynchus mykiss*) 96-hr: LC<sub>50</sub> = > 85.9 mg/L

**Chronic Toxicity to Fish:** No data available

**Acute Toxicity to Aquatic**

**Invertebrates:** No data available

**Toxicity to Aquatic Plants:** No data available

**Toxicity to Bacteria:** No data available

**Toxicity to Soil Dwelling**

**Organisms:** No data available

**Ecotoxicity**

**Toxicity to Terrestrial Plants:** No data available

**Stability in Water:** Stable

**Stability in Soil:** Stable

**Environmental Fate:****Transport and Distribution:**

Calculated, fugacity level III: 3.98 x 10<sup>-12</sup> to air, 45.3% to water, 54.6% to soil, 0.0755% to sediment. Phosphates, whether water or citrate soluble, are translocated in the soil only over very short periods and are then immobilized.

**Toxicity:** Inorganic phosphates have the potential to increase the growth of freshwater algae, whose eventual death will reduce the available oxygen for aquatic life.

**Biodegradation:**

The Phosphorus cycle is well understood. Phosphates are converted to calcium or iron/aluminum phosphates or are incorporated with the

**Degradation Products:** organic soil matter.

**Photodegradation:** No data available

## Section XIII – Disposal Considerations

**Product Disposal:**

Dispose of waste at an appropriate waste disposal facility according to applicable laws and regulations. Collect in appropriate containers. Dispose of at an appropriate waste disposal facility in accordance with current applicable laws and regulations and product characteristics at time of disposal.

**General Comments:** None

## Section XIV – Transportation Information

**USDOT TDG - Canada**

**Proper Shipping Name:** Not regulated Not regulated

**Hazard Class:**

**Identification Number:**

**Packing Group (Technical Name):**

**Labeling / Placarding:**

**Authorized Packaging:**

**Notes:**

**European Transportation:**

Product Name: MAP (Monoammonium Phosphate)

**Section XV – Regulatory Information**

This product has been reviewed according to the EPA Hazard Categories promulgated under Section 311 and 312 of the Superfund Amendment and reauthorization Act of 1986 (SARA title III) and is considered, under applicable definitions, to meet the following categories:

**Fire:** No Pressure

**Generating:** No Reactivity: No Acute: Yes Chronic: No

**40 CFR Part 355 - Extremely Hazardous Substances:** None

**40 CFR Part 370 - Hazardous Chemical Reporting:** Applicable

**UNITED STATES:**

**SARA Hazard Category:**

**All intentional ingredients listed on the TSCA inventory.**

**SARA Title III Information:** This product contains the following substances subject to the reporting requirements of Title III (EPCRA) of

the Superfund amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

**SARA (1986) Reporting**

**Chemical CAS NO.**

**Percent**

**by**

**Weight**

**CERCLA**

**RQ (lbs) 311 312 313**

Monoammonium Phosphate, as P<sub>2</sub>O<sub>5</sub> 7722-76-1 52 Yes Yes No

**CERCLA/Superfund, 40**

**CFR Parts 117, 302:**

If this product contains components subject to substances designated as CERCLA reportable Quantity (RQ) Substances, it will be designated in the above table with the RQ value in pounds. If there is a release of RQ Substance to the environment, notification to the National response Center, Washington D.C. (1-800-424-8802) is required.

**WHMIS Hazard Symbol and Classification:** This product is not WHMIS controlled.

**CANADA: Ingredient Disclosure List:** This product does not contain ingredient(s) on this list.

**Environmental Protection:** All intentional ingredients are listed on the DSL (Domestic Substance List).

**EINECS#:** (Monoammonium Phosphate) 231-764-5

This is not a chemical known to cause cancer, nor is it listed.

**Section XVI – Other Information**

**Health: 1 Fire: 0 Reactivity: 0 Special Hazards:**

**NFPA Hazard Ratings:**

**0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme**

**COMMENTS:**

**Section(s) changed**

**since last revision:** I, XII, XV

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