

MONOPOTASSIUM PHOSPHATE (MKP)

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

MONOPOTASSIUM PHOSPHATE (MKP)
Potassium Dihydrogen Phosphate (KDP); Potassium Phosphate, Monobasic
CAS: 7778-77-0

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Water-soluble fertiliser (potassium-phosphorus source), especially for fertigation and foliar feeding; food additive / acidity regulator and buffering agent (INS 340(i)); yeast and fermentation nutrient; raw material for KDP piezoelectric/non-linear-optical crystals; pH buffer in laboratory and pharmaceutical formulations. For industrial user only.
Uses advised against: All uses not specified in this section or in section 7.3.

1.3 Supplier's details:

SURAJ CHEMICALS
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GST No: 33ACEPV8190L1ZZ

1.4 Emergency phone number:

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), based on well-established, publicly documented data for this CAS number.

Not classified – this substance does not meet the classification criteria for any hazard class under the GHS, based on available data for this CAS number.

2.2 GHS label elements, including precautionary statements:

GHS: No signal word (Not classified as hazardous)

Hazard statements:

No GHS hazard statements apply to this substance; it is not classified as hazardous under the GHS criteria, based on well-established, publicly documented data for this CAS number.

Precautionary statements:

As general good industrial hygiene practice (not mandatory GHS label elements):
P262: Do not get in eyes, on skin, or on clothing.
P264: Wash hands thoroughly after handling.
P271: Use only outdoors or in a well-ventilated area.
P280: Wear protective gloves/eye protection.
P314: Get medical advice/attention if you feel unwell.
P501: Dispose of contents/container in accordance with local regulations.

2.3 Other hazards which do not result in classification:

Aqueous solutions are mildly acidic (pH ≈4.5–4.7) and may cause mild irritation on prolonged or repeated skin/eye contact. No other hazards which do not result in classification are known.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Monopotassium Phosphate (Potassium Dihydrogen Phosphate)
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 7778-77-0	MONOPOTASSIUM PHOSPHATE (MKP) — Not classified as hazardous under GHS criteria	Technical / Fertiliser / Food / Pharmacopoeial grade, min. 98% w/w KH2PO4

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

3.2 Mixtures:

Non-applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first-aid measures:

Request medical assistance immediately, showing the SDS of this product, if symptoms persist or if there is any doubt.

By inhalation:

Remove the person affected from the area of exposure to fresh air and keep at rest. If breathing is difficult, administer oxygen. If irritation, coughing or breathing difficulty persists, seek medical attention.

By skin contact:

Remove contaminated clothing and footwear. Wash the affected skin thoroughly with plenty of soap and water. If irritation develops or persists, seek medical attention.

By eye contact:

Rinse eyes immediately with plenty of clean, lukewarm water for at least 15 minutes, holding the eyelids open. Remove contact lenses if present and easy to do. If irritation persists, consult an ophthalmologist.

By ingestion/aspiration:

Rinse mouth with water. Do not induce vomiting. If the person is conscious, give plenty of water to drink. Seek medical attention if large quantities have been swallowed or if discomfort persists.

4.2 Most important symptoms/effects, acute and delayed:

Acute and delayed effects are indicated in sections 2 and 11.

4.3 Indication of immediate medical attention and special treatment needed, if necessary:

Treat symptomatically. No specific antidote is available.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media:

Suitable: Use extinguishing media appropriate to the surrounding fire. Non-combustible.
Unsuitable: None known

5.2 Specific hazards arising from the chemical:

Non-combustible solid. On strong heating (above approx. 250°C) decomposes, releasing water vapour and forming potassium polyphosphates; no significant toxic combustion products are expected.

5.3 Special protective actions for fire-fighters:

Evacuate all non-essential personnel. Intervention only by trained personnel aware of the hazards of the product. Wear self-contained breathing apparatus and full protective clothing in the event of fire.

Additional provisions:

Cool fire-exposed containers with water spray if safe to do so.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:

Avoid generating and inhaling dust. Ventilate the area. Use the personal protective equipment described in section 8. Keep unprotected persons away from the spill area.

For emergency responders:

Wear appropriate protective equipment as described in section 8. Avoid raising dust during clean-up operations.

6.2 Environmental precautions:

Avoid, as far as possible, release of the product into the environment in large quantities. Contain spillage and prevent entry into drains, watercourses or soil. Notify the relevant authority in case of significant exposure to the environment.

6.3 Methods and materials for containment and cleaning up:

Sweep up or vacuum (avoiding dust dispersion) and collect in a suitable, labelled container for reuse or disposal. Wash the contaminated area with water after the bulk of the material has been removed.

6.4 Reference to other sections:

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:

A. General precautions for safe use:

Avoid generating and inhaling dust. Aqueous solutions are mildly acidic; avoid prolonged skin/eye contact.

B. Technical recommendations for the prevention of fires and explosions:

Non-combustible; no special fire/explosion precautions are required.

C. Technical recommendations on general occupational hygiene:

Do not eat, drink or smoke during handling; wash hands and exposed skin thoroughly after handling and before breaks.

D. Technical recommendations to prevent environmental risks:

Avoid release to drains, watercourses or soil. Store containers on an impervious surface. Follow the protective measures given in section 8.

7.2 Conditions for safe storage, including any incompatibilities:

A. Specific storage requirements:

Minimum Temp.	5°C
Maximum Temp.	40°C
Maximum time	24 Months (in original, unopened packaging)

B. General conditions for storage:

Store in a cool, dry, well-ventilated place in tightly closed containers. Keep away from strong bases, strong oxidisers and strong reducing agents. For additional information see subsection 10.5.

7.3 Specific end use(s):

Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

Substances whose occupational exposure limits have to be assessed in the workplace, per the Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987):

Identification	Occupational Exposure Limit Type	Value
Particulates Not Otherwise Classified (PNOC) – dust from this product	Time Weighted average concentration (8 hrs), inhalable fraction	10 mg/m³
	Time Weighted average concentration (8 hrs), respirable fraction	3 mg/m³

8.2 Appropriate engineering controls:

Use local exhaust ventilation or general dilution ventilation to control dust levels below the applicable occupational exposure limit. Provide eyewash stations and washing facilities near the work area.

B. Respiratory protection:

Not normally required under conditions of good industrial hygiene with adequate ventilation. If dust levels are high or ventilation is inadequate, use a dust mask/respirator fitted with a P1/P2 particulate filter.

C. Specific protection for the hands:

Protective gloves (e.g. nitrile or PVC) are recommended for prolonged or repeated handling, as good industrial hygiene practice. Replace at any sign of damage.

D. Eye and face protection:

Safety glasses with side shields are recommended to prevent dust contact with the eyes.

E. Bodily protection:

Standard work clothing; launder regularly. Use additional protective clothing where prolonged or heavy dust exposure is expected.

F. Additional emergency measures:

Emergency shower (ANSI Z358-1, ISO 3864-1:2011, ISO 3864-4:2011) and eyewash stations (DIN 12 899, ISO 3864-1:2011, ISO 3864-4:2011) should be available near the work area.

Environmental exposure controls:

Avoid release of the product to drains, watercourses or soil. See subsection 7.1.D.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance	
Physical state at 20°C	Solid
Appearance	Crystalline powder or granules

Color	White
Odor	Odorless
Odour threshold	Not relevant *
Volatility	
Boiling point at atmospheric pressure	Not applicable – solid, decomposes before boiling
Vapour pressure at 20°C / 50°C	Not relevant *
Evaporation rate at 20°C	Not relevant *
Product Description	
Density / Relative density at 20°C	≈2.34 g/cm³ – typical value, refer to current specification sheet
Dynamic / Kinematic viscosity	Non-applicable (solid)
Concentration	Technical / Fertiliser / Food / Pharmacopoeial grade, min. 98% w/w KH2PO4
pH	4.5–4.7 (1% aqueous solution) – acidic
Vapour density at 20°C	Not relevant *
Partition coefficient n-octanol/water 20°C	Not applicable – inorganic salt
Solubility in water at 20°C	≈22.6 g/100 mL at 20°C
Decomposition temperature	≈252°C (decomposes, forming potassium polyphosphate and water)
Melting point/freezing point	≈253°C (decomposes)
Flammability	
Flash Point	Non-applicable (inorganic solid)
Flammability (solid, gas)	Non-flammable
Autoignition temperature	Not relevant *
Lower / Upper flammability limit	Not relevant *
Particle Characteristics	
Median equivalent diameter	Typical value — refer to current specification sheet

* Not relevant due to the nature of the product, not providing information on the properties of its hazards.

9.2 Other information:

Explosive properties	Not explosive
Oxidising properties	Not an oxidiser
Corrosive to metals	Not significantly corrosive to metals under normal conditions.
Heat of combustion	Not relevant *
Surface tension at 20°C	Not relevant *
Refraction index	Not relevant *

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:

Reacts with strong bases (neutralisation). Incompatible with strong oxidisers and strong reducing agents. Stable under normal conditions of storage and handling.

10.2 Chemical stability:

Chemically stable under the indicated conditions of storage, handling and use.

10.3 Possibility of hazardous reactions:

On strong heating, releases water vapour and forms potassium polyphosphates; otherwise no hazardous reactions are expected under normal conditions.

10.4 Conditions to avoid:

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Avoid heating above ≈250°C (decomposition)	Not applicable	Avoid prolonged exposure to moisture

10.5 Incompatible materials:

Strong Bases	Strong Oxidisers	Strong Reducing Agents
Avoid contact – neutralisation	Avoid contact	Avoid contact

10.6 Hazardous decomposition products:

Water vapour and potassium polyphosphates on strong heating (>250°C); no hazardous gases expected.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect):

Low acute oral toxicity; used as a regulated food additive (INS 340(i)). Large doses may cause mild gastrointestinal discomfort.

B. Inhalation (acute effect):

May cause mild irritation of the respiratory tract due to dust; not expected to be acutely toxic by inhalation.

C. Contact with skin and eyes (acute effect):

Aqueous solutions are mildly acidic and may cause mild irritation to skin and eyes on prolonged or repeated contact.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity):

Classification criteria for carcinogenicity, mutagenicity and reproductive toxicity are not met based on available data. IARC: Not listed.

E. Sensitizing effects:

Not expected to be a sensitiser based on available data.

F. Specific target organ toxicity (STOT) – single exposure:

Not classified; may cause transient irritation.

G. Specific target organ toxicity (STOT) – repeated exposure:

Classification criteria are not met based on available data.

H. Aspiration hazard:

Classification criteria are not met based on available data; not applicable to solids of this nature.

Product-specific toxicological information:

Identification	Acute Toxicity	Genus
Monopotassium Phosphate CAS: 7778-77-0	LD50 oral (rat): >5000 mg/kg (practically non-toxic)	Rat

SECTION 12: ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment; nutrient (phosphorus/potassium) loading should be managed to avoid eutrophication.

12.1 Toxicity:

Identification	Acute Toxicity	Species	Genus
Monopotassium Phosphate CAS: 7778-77-0	LC50 (fish): Typical value — refer to current specification sheet	Not available	Fish

12.2 Persistence and degradability:

Dissociates into potassium and phosphate ions, naturally occurring nutrient species; the concept of biodegradability is not directly applicable.

12.3 Bioaccumulative potential:

Not expected to bioaccumulate.

12.4 Mobility in soil:

Koc	Henry	Dry Soil	Moist Soil
Not relevant	Not relevant	No	Highly mobile (soluble)

12.5 Results of PBT and vPvB assessment:

Non-applicable – this substance is an inorganic/mineral salt and is not subject to PBT/vPvB assessment criteria.

12.6 Other adverse effects:

Excessive phosphorus input to water bodies may contribute to eutrophication.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

Collect and, where possible, reuse or recycle. Dispose of as general inorganic solid waste in accordance with local/state pollution control board regulations, or via a licensed waste disposal contractor. Do not discharge directly into drains or watercourses in bulk.

Refer to national and local regulations on waste management. Do not discharge directly into drains, watercourses or onto the ground.

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023):

14.1 UN number	Not assigned – non-hazardous for transport
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	Non-applicable
14.5 Environmental hazard	No
14.6 Special precautions for user	Not classified as a dangerous good under ADR/RID, IMDG or IATA/ICAO regulations. Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG 41-22):

14.1 UN number	Not assigned – non-hazardous for transport
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	Non-applicable
14.5 Environmental hazard	No
14.6 Special precautions for user	Not classified as a dangerous good under ADR/RID, IMDG or IATA/ICAO regulations. Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO 2024):

14.1 UN number	Not assigned – non-hazardous for transport
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	Non-applicable
14.5 Environmental hazard	No
14.6 Special precautions for user	Not classified as a dangerous good under ADR/RID, IMDG or IATA/ICAO regulations. Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question:

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product. This substance is registered for use as a fertiliser and as a food additive (INS 340(i)), subject to compliance with applicable regulations; this SDS addresses industrial/technical handling only.

Other legislation:

Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989

The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)

The Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules, 1996

Public Liability Insurance Act, 1991

Food Safety and Standards Act, 2006 (where the substance is permitted as a food/feed additive)

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3:

No GHS hazard statements apply to this substance; it is not classified as hazardous under the GHS.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training:

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:

The United Nations Economic Commission for Europe (UNECE); publicly available GHS classification and labelling data for this CAS number.

Abbreviations and acronyms:

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | COD: Chemical Oxygen Demand | BOD5: 5-day biochemical oxygen demand | BCF: Bioconcentration factor | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Log-POW: Octanol-water partition coefficient | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer | ATE: Acute Toxicity Estimate | PNOC: Particulates Not Otherwise Classified

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

END OF SAFETY DATA SHEET