

DIAMMONIUM PHOSPHATE (DAP)

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

DIAMMONIUM PHOSPHATE (DAP)
Diammonium Hydrogen Phosphate; Ammonium Phosphate, Dibasic
CAS: 7783-28-0

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Phosphorus-nitrogen fertilizer, flame retardant formulations, food additive (buffering/leavening agent), fire extinguisher powder component, yeast nutrient. 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
No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India
Tel: +91 - 7092722822, +91 - 9840284032 / +91 - 44 - 25393652, 42130281
Email: sales@surajchemicals.com | Website: www.surajchemicals.com
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).

Not classified	This substance does not meet the criteria for classification as hazardous under GHS.
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2.2 GHS label elements, including precautionary statements:

GHS: No signal word required (not classified as hazardous)

Hazard statements:

None assigned. Dust may cause mechanical/mild transient irritation of eyes and respiratory tract; mild ammonia odour may be noticeable.

Precautionary statements:

P264: Wash hands thoroughly after handling.
P271: Use only outdoors or in a well-ventilated area when handling large quantities.
P280: Wear protective gloves/eye protection if handling dusty material.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards which do not result in classification:

May slowly release ammonia on prolonged exposure to moisture/heat (mildly alkaline in solution). Not a PBT or vPvB substance.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Diammonium Phosphate
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 7783-28-0	Diammonium Phosphate — Not classified	≥ 96% (fertilizer/technical grade)

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:

No specific emergency treatment required under normal conditions of use.

By inhalation:

Remove to fresh air if dust or ammonia odour causes discomfort. Seek medical attention if symptoms persist.

By skin contact:

Wash with plenty of water. Remove contaminated clothing if heavily soiled.

By eye contact:

Rinse with plenty of water for several minutes, holding eyelids open. Seek medical attention if irritation persists.

By ingestion/aspiration:

Rinse mouth with water. Give water to drink if conscious. Seek medical attention if large quantities are ingested or discomfort occurs.

4.2 Most important symptoms/effects, acute and delayed:

Mild, transient irritation of eyes/respiratory tract from dust may occur. No significant delayed effects expected. See sections 2 and 11.

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

Not relevant

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media:
Suitable: Water spray, dry chemical powder, carbon dioxide, foam – use extinguishing media appropriate for the surrounding fire. (DAP is itself used as a fire-retardant/extinguishing agent component.)
Unsuitable: None known.

5.2 Specific hazards arising from the chemical:
Non-combustible solid. On strong heating decomposes releasing ammonia and phosphorus oxide fumes, which are irritating.

5.3 Special protective actions for fire-fighters:
Standard fire-fighting procedures. Wear self-contained breathing apparatus if decomposition fumes are present in a confined space.

Additional provisions:
Cool containers exposed to fire 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 raising dust. Use personal protective equipment as per section 8. Ventilate area if dust or ammonia odour accumulates.
For emergency responders:
No special equipment required beyond standard PPE listed in section 8.

6.2 Environmental precautions:
Avoid large-scale release to water courses, as it may contribute to localized nutrient (nitrogen/phosphate) loading.

6.3 Methods and materials for containment and cleaning up:
Sweep up and shovel into a suitable, labelled container for reuse (preferred, e.g., as fertilizer) or disposal. Avoid generating dust.

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 generation and prolonged inhalation of dust. Avoid contact with eyes. Keep away from strong alkalis and strong acids.

B. Technical recommendations for the prevention of fires and explosions:
Non-combustible; no special fire-prevention measures required beyond good housekeeping.

C. Technical recommendations on general occupational hygiene:
Do not eat, drink or smoke while handling. Wash hands thoroughly after use.

D. Technical recommendations to prevent environmental risks:
Prevent spillage from entering drains or water courses; store away from fertilizer run-off pathways.

7.2 Conditions for safe storage, including any incompatibilities:
A. Specific storage requirements:

Minimum Temp.	Ambient
Maximum Temp.	35°C
Maximum time	Typical value – refer to current specification sheet

B. General conditions for storage:
Store in a cool, dry, well-ventilated place in closed containers/bags, away from strong acids/alkalis and moisture (hygroscopic). 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:
No specific occupational exposure limit established for diammonium phosphate; a general particulate (nuisance dust) limit is applicable, 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
Diammonium Phosphate (as inert/nuisance dust) CAS: 7783-28-0	Time Weighted average concentration (8 hrs), total dust	10 mg/m³

8.2 Appropriate engineering controls:
General ventilation is normally adequate; use local exhaust ventilation where significant dust is generated.

B. Respiratory protection:
Dust mask recommended in dusty conditions.

C. Specific protection for the hands:
Protective gloves recommended for prolonged handling.

D. Eye and face protection:
Safety glasses/goggles recommended where dust is present.

E. Bodily protection:
Standard work clothing.

F. Additional emergency measures:
Eyewash station recommended where handled in bulk.

Environmental exposure controls:
Avoid large-scale environmental spillage. 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 (crystalline granules)
Appearance	Grayish-white to brown granules
Color	Grayish-white / light brown
Odor	Faint ammonia odour
Odour threshold	Not relevant

Volatility	
Decomposition temperature	≈ 155°C (decomposes)
Vapour pressure at 20°C	Negligible (solid)
Evaporation rate at 20°C	Non-applicable (solid)
Product Description	
Molecular weight	≈ 132.06 g/mol
Density / Relative density at 20°C	≈ 1.62 g/cm³
Bulk density	Typical value – refer to current specification sheet
pH (1% aqueous solution)	≈ 7.5 – 8.5 (slightly alkaline)
Solubility in water at 20°C	Highly soluble, ≈ 575 g/L
Partition coefficient n-octanol/water	Not relevant (inorganic salt)
Melting point/freezing point	Decomposes before melting (see decomposition temperature)
Flammability	
Flash Point	Non-applicable
Flammability (solid, gas)	Non-flammable
Autoignition temperature	Non-applicable
Lower / Upper flammability limit	Non-applicable
Particle Characteristics	
Median equivalent diameter	Typical value – refer to current specification sheet

** Values marked "Typical value" are not standardized and vary by batch/grade – refer to the current specification sheet.*

9.2 Other information:

Explosive properties	Not relevant
Oxidising properties	Non-oxidising
Corrosive to metals	Not relevant
Heat of combustion	Non-applicable (non-combustible)
Viscosity	Non-applicable (solid)
Refraction index	Not relevant

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:

Reacts with strong alkalis to liberate ammonia gas. May react with strong acids. Slightly hygroscopic.

10.2 Chemical stability:

Chemically stable under the indicated conditions of storage, handling and use. Slowly loses ammonia on prolonged storage in warm/humid conditions.

10.3 Possibility of hazardous reactions:

Under the specified conditions, hazardous reactions leading to excessive temperature or pressure are not expected.

10.4 Conditions to avoid:

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not significant	Avoid prolonged heating – decomposes above 155°C	Not significant	Avoid prolonged exposure (hygroscopic)

10.5 Incompatible materials:

Strong Alkalis	Strong Acids	Strong Oxidizers	Moisture
Avoid contact – liberates NH3	Avoid contact	Avoid contact	Avoid prolonged exposure

10.6 Hazardous decomposition products:

Ammonia and phosphorus oxide fumes on strong heating/decomposition.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

Diammonium phosphate has low acute toxicity and is used as a food additive at regulated concentrations. 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. Large doses may cause gastrointestinal discomfort.

B. Inhalation (acute effect):

Dust may cause mild, transient irritation of the respiratory tract.

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

May cause mild, transient irritation on contact with eyes; not expected to be a skin irritant under normal use.

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:

Classification criteria for respiratory or skin sensitisation are not met based on available data.

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

Classification criteria are not met based on available data.

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

Classification criteria are not met based on available data.

H. Aspiration hazard:

Not relevant (solid).

Product-specific toxicological information:

Identification	Acute Toxicity	Genus
Diammonium Phosphate CAS: 7783-28-0	LD50 oral: > 2000 mg/kg (practically non-toxic)	Rat

	LD50 dermal: Not established	–
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SECTION 12: ECOLOGICAL INFORMATION

Low acute aquatic toxicity; widely used agricultural fertilizer. Excessive nitrogen/phosphate input may contribute to eutrophication.

12.1 Toxicity:

Identification	Acute Toxicity	Species	Genus
Diammonium Phosphate CAS: 7783-28-0	LC50: > 100 mg/L (96h) – low acute toxicity	Non-applicable	Fish

12.2 Persistence and degradability:

Dissociates in water to ammonium and phosphate ions; subject to natural nitrogen and phosphorus cycling.

12.3 Bioaccumulative potential:

Not expected to bioaccumulate (inorganic salt, log Pow not applicable).

12.4 Mobility in soil:

Koc	Henry	Dry Soil	Moist Soil
Not relevant	Not relevant	Highly mobile (soluble)	Moderate – phosphate binds to soil particles

12.5 Results of PBT and vPvB assessment:

Non-applicable – inorganic substance, PBT/vPvB criteria do not apply.

12.6 Other adverse effects:

Excessive nitrogen/phosphate input to water bodies may contribute to eutrophication/algal bloom.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

Non-hazardous waste; may be used as fertilizer/soil amendment per local agricultural norms, or disposed of via a licensed waste contractor in accordance with local regulations. For packaging: recover/recycle where possible.
Refer to national and local regulations on waste management.

SECTION 14: TRANSPORT INFORMATION

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

14.1 UN number	Not assigned – not regulated as dangerous goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Not classified
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	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 – not regulated as dangerous goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Not classified
14.4 Packing group	N/A
14.5 Marine pollutant	No
14.6 Special precautions for user	Non-hazardous for sea transport
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 – not regulated as dangerous goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Not classified
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	Non-hazardous for air transport
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.

Other legislation:

Fertilizer (Control) Order, 1985 (where applicable to agricultural grade)
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
Public Liability Insurance Act, 1991

SECTION 16: OTHER INFORMATION

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:

Not classified – no hazard statements assigned under GHS criteria for this substance.

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 references.

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 | 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

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