# DIAMMONIUM PHOSPHATE (DAP)

## 1 Identification of the substance/preparation and of the company/undertaking

<table>
<thead>
<tr>
<th>Commercial product name</th>
<th>DI amonium phosphate (DAP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common chemical name</td>
<td>Diammonium hydrogenorthosphate</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Phosphoric Acid, Ammonium Salt 1,2; Ammonium Phosphate dibasic</td>
</tr>
<tr>
<td>Chemical formula</td>
<td>Preparation, main ingredient (NH4)2 HPO4</td>
</tr>
<tr>
<td>EU index number (Annex 1)</td>
<td>Not available</td>
</tr>
<tr>
<td>ID number in Appendix VI/CLP</td>
<td>Not listed in Tables under Appendix VI/CLP.</td>
</tr>
<tr>
<td>IENEC No</td>
<td>231-987-8</td>
</tr>
<tr>
<td>CAS No.</td>
<td>7783-28-0</td>
</tr>
</tbody>
</table>

**REACH Registration Number:** 07-2119490974-22-0016

## 2 Hazards identification

### Classification

The substance is not classified as dangerous according to the criteria of the Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation; 1272/2006/EC). Specific Risk Management Measures are therefore not required. Nevertheless, the exposure of workers during and after normal operations should be minimised by the use of good industrial hygiene practice, the general measures necessary for safety and health protection of workers (article 6 of Directive 89/391/EC) and the reduce-to-a-minimum principle (article 6 of Chemical Agents Directive 98/24/EC).

**Physical and chemical hazards:** Not combustible, does not support combustion, when heated strongly decomposes giving ammonia and phosphorus oxides

### Health hazards

DAP is basically a harmless products when handled correctly. However the following points should be noted:

- **Skin contact:** May cause some irritation on prolonged or repeated contact.
- **Eye contact:** May cause some irritation on prolonged or repeated contact.
- **Ingestion:** Small quantities are unlikely to cause toxic effect; large quantities may give rise to gastro-intestinal disorders.
- **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.
- **Long term effects:** No known long term effects

### Environmental hazards

Possible eutrophication in confined surface waters in case of massive spillage.

**Other:** No.

## 3 Composition/information on ingredients

<table>
<thead>
<tr>
<th>Hazardous ingredients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical name</td>
</tr>
<tr>
<td>None</td>
</tr>
</tbody>
</table>

### Composition

**Chemical name**

- Diammonium hydrogenorthophosphate, DAP

<table>
<thead>
<tr>
<th>CAS no.</th>
<th>IENEC no.</th>
<th>% content</th>
<th>IUPAC name</th>
</tr>
</thead>
<tbody>
<tr>
<td>7783-28-0</td>
<td>231-987-8</td>
<td>84.77%</td>
<td>Diammonium hydrogenorthophosphate</td>
</tr>
</tbody>
</table>
4 First aid measures

General
In some cases medical attention necessary (see below).

Inhalation
Remove from source of exposure to dusts. Obtain medical attention if ill effects occur.

Ingestion
Do not induce vomiting. Rinse mouth and then give water or milk to drink. Obtain medical attention if more than a small quantity has been swallowed.

Skin contact
Wash the affected area with soap and water.

Eye contact
Flush/irrigate eyes with copious amounts of water for at least 10 minutes. Obtain medical attention if eye irritation persists.

Note to physician
Inhalation of fire and thermal decomposition gases, containing ammonia, can cause irritation and corrosive effects on the respiratory system. Some lung effects may be delayed.

5 Fire-fighting measures

Suitable extinguishing media
If fertilizer is not directly involved in the fire
Use the best means available to extinguish the fire.

If fertilizer is involved in the fire
Use plenty of water, foam or dry chemical

Extinguishing media not to be used
None

Hazardous thermal decomposition and combustion
Ammonia and possibly oxides of phosphorus

Special fire fighting procedures
Open doors and windows of the store to give maximum ventilation. Avoid breathing the fumes (toxic); stand up-wind of the fire.

Special protective equipment for firefighters
Use a self-contained breathing apparatus if fumes are being entered.

6 Accidental release measures

Personal precautions
Avoid walking through spilled product and exposure to dust.

Environmental precautions
Take care to avoid the contamination of watercourses and drains and inform the appropriate authority in case of accidental contamination of watercourses.

Methods for cleaning up
Any spillage of fertilizer should be cleaned up promptly, swept up and placed in a clean labelled open container for safe disposal, avoiding dusty conditions.

Remarks
none

Note: see section 8 for personal protective equipment and section 13 for waste disposal.

7 Handling and storage

Handling
Avoid excessive generation of dust.
Avoid contamination by combustible (e.g. diesel oil, grease, etc.) and/or other incompatible materials.
Avoid unnecessary exposure to the atmosphere to prevent moisture pick-up.
When handling the product over long periods use appropriate personal protective equipment, e.g. gloves.
Carefully clean all equipment prior to maintenance and repair.

Storage
Store in compliance with national and local regulations
Locate away from the sources of heat or fire.
Keep away from combustible materials and substances mentioned under Section10.
On farm, ensure that the fertilizer is not stored near hay, straw, grain, diesel oil, etc.
When stored loose, take particular care to avoid mixing with other fertilizers.
Ensure high standard of housekeeping in the storage area.
Do not permit smoking and the use of naked lights in the storage areas.
It is recommended to restrict the stack size and to keep at least 1 m distance around the stacks of bagged products.
Any building used for the storage should be dry and well ventilated.

Specific use(s)
No specific uses

Packaging materials
Plastic synthetic materials, steel and aluminum are suitable. Avoid use of copper.

8 Exposure controls / Personal protection

Exposure limit values
No specific official EU limit.
ACGIH recommended value for nuisance dust for inhalable particulates: TLV/TWA : 10mg/m3.
Recommended occupational and consumer exposure limit values (following from the performed CSA):
Exposure pattern Derived No Effect Level (DNEL)
Workers General population
Oral1 Not applicable 2.1 mg/kg bw/d
Dermal1 34.7 mg/kg bw/day 20.8 mg/kg bw/day
inhalation1 6.1 mg/m3 1.8mg/m3

1: As an acute toxicity hazard leading to Classification and Labelling of the substance has not been identified, the long-term DNEL is considered sufficient to ensure that effects from acute exposure to the substance do not occur (in accordance with ECHA Guidance on information requirements and chemical safety assessment: Chapter R.8: Characterisation of dose [concentration]-response for human health, May 2008 and Part B: Hazard Assessment, Draft new chapter B.8 Scope of Exposure Assessment, March 2010).

Engineering measures
Avoid high dust concentration and provide ventilation where necessary.
### Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>White, grey or blackish crystals or granules.</td>
</tr>
<tr>
<td>Odour</td>
<td>Odourless or slight ammonia odour</td>
</tr>
<tr>
<td>pH</td>
<td>pH water solution (0.1 M) approx. 8</td>
</tr>
<tr>
<td>Boiling point or range</td>
<td>Decomposes at 155 °C</td>
</tr>
<tr>
<td>Melting point or range</td>
<td>Decomposes at 155 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Non explosive</td>
</tr>
<tr>
<td>Auto-Ignition temperature</td>
<td>Not combustible</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>155 °C</td>
</tr>
<tr>
<td>Minimum ignition energy</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not known oxidizing properties</td>
</tr>
<tr>
<td>Critical temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Density</td>
<td>1619 kg/m³ at 20°C for main ingredient DAP as solid</td>
</tr>
<tr>
<td>Loose bulk density</td>
<td>Approximately 1000 kg/m³, depends on granulometry.</td>
</tr>
<tr>
<td>Vapour pressure at 20°C</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour density</td>
<td>Not applicable - solid substance</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable - solid substance</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not applicable - solid substance</td>
</tr>
<tr>
<td>Mean particle size</td>
<td>1 - 5 mm above 99.0 %</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Pure DAP 588 g/l at 20°C</td>
</tr>
<tr>
<td>Miscibility</td>
<td>Not applicable - solid substance</td>
</tr>
<tr>
<td>Fat solubility</td>
<td>Not available - solid substance</td>
</tr>
<tr>
<td>Conductivity</td>
<td>Not available - solid substance</td>
</tr>
<tr>
<td>Gas group</td>
<td>Not applicable - solid substance</td>
</tr>
<tr>
<td>Remarks</td>
<td>Molecular weight 132.06 (DAP)</td>
</tr>
</tbody>
</table>

### Toxicological information

#### Toxicokinetics, metabolism and distribution

- **Acute effects**
  - **Ingredient name**: Diammonium phosphate
  - **LD50**: Rat/Oral *> 2,000 mg/kg
  - **LD50**: Rat/Dermal *> 5,000 mg/kg

#### Sensitisation

- **Not available**

#### Chronic toxicity

- **Not known significant effects**

#### Carcinogenicity

- **Not available**

#### Mutagenicity

- **Not known significant effects**

#### Reproductive toxicity

- **Not known significant effects**
  - Negative: Test performed according to OECD 422 (1996) Rat oral (Gavage) Reproductive/developmental: NOAEL of 1500 mg/kg/day; Developmental NOAEL of 750mg/kg bw

### Remarks

- **None**

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**ECSDS_EN**
12 Ecological information

<table>
<thead>
<tr>
<th>Ecotoxicity</th>
<th>Ingredient name</th>
<th>Test</th>
<th>Species</th>
<th>Period</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Di ammonium phosphate</td>
<td>LC50</td>
<td>Cirrhinus mrigala</td>
<td>96 h</td>
<td>1,700 mg/l - 1,875 mg/l</td>
<td></td>
</tr>
<tr>
<td>Di ammonium phosphate</td>
<td>NOEC (Acute algae toxicity)</td>
<td>Selenastrum capricornutum</td>
<td>72 h</td>
<td>97.1 mg/l</td>
<td></td>
</tr>
</tbody>
</table>

Mobility

Phosphates, whether water or citrate soluble, are translocated in the soil only over very short periods and are then immobilised. Land-applied phosphate and ammonium are adsorbed to soil particles. Soil half-life: 1-2 weeks.

Persistence and degradability

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Di ammonium phosphate</td>
<td>Not available</td>
<td>Not susceptible to photodegradation</td>
<td>Readily</td>
</tr>
</tbody>
</table>

Bioaccumulative potential

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Kow or LogPow</th>
<th>Bioconcentration factor</th>
<th>Bio accumulative potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Di ammonium phosphate</td>
<td>Not available</td>
<td>Not available</td>
<td>Not available</td>
</tr>
</tbody>
</table>

Results of PBT assessment

Not available

Other adverse effects

Soil bacteria will convert ammonium to nitrate, which can be taken up by plants or denitrified by micro-organisms to nitrogen and nitrous oxide gas. In water, ammonium and phosphate ions may cause eutrophication possibly resulting in increased algal growth. Decomposition of the algae may reduce dissolved oxygen which if significant could suffocate other aquatic organisms.

13 Disposal considerations

Methods of disposal

Depending on degree and nature of contamination, dispose of by use as fertilizer on farm, as raw material for liquid fertilizer, or to an authorized waste facility. Do not empty into drains; dispose of this material and its container in a safe way and in accordance with all applicable local and national regulations. See chapters 06 03 and 06 10 of the list of wastes (Commission Decision 2000/532/EC).

Package waste disposal

Empty the bag by shaking to remove as much as possible of its contents. If approved by local authorities, empty bags may be disposed of as non-hazardous material or returned for recycling.

Note: see section 7 for safe handling and storage

14 Transport information

Not classified i.e. considered non-hazardous material according to UN Orange Book and international transport codes e.g. RID (rail), ADR (road) and IMDG (sea). [Directive 94/55/EC (Road Transport), Directive 96/49/EC (Rail Transport) and their amendments]

<table>
<thead>
<tr>
<th>UN Number</th>
<th>Proper shipping name</th>
<th>Class</th>
<th>Packing group</th>
<th>Label</th>
<th>Other applicable information</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR/RID</td>
<td>Not classified</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>ADN/ADNR</td>
<td>Not classified</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>IMDG</td>
<td>Not classified</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>ICAO/IATA</td>
<td>Not classified</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

15 Regulatory information

Hazard symbol

Not applicable

R and S phrases

Not applicable

Other regulations


16 Other information

The information refers to section 2 and 3

Risk phrases

Not applicable

Symbols

Not applicable

Training advice

Date of previous SDS

2013

Current version / date:

4 JUNE 2015

References

EFMA Guidance documents, TFI HPV data, NOTOX gap analysis

Disclaimer

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