MATERIAL SAFETY DATA SHEET
DAP—Diammonium Phosphate

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name:	DAP—Diammonium Phosphate
Chemical Name:	Dibasic Ammonium Phosphate
Chemical Family:	Ammonium Phosphates—Inorganic Salt
Synonyms/Brands:	Ammonium Phosphate Dibasic DAP Fertilizer Grade Ammonium Phosphate 18-46-0
Chemical Formula:	$(NH_4)_2HPO_4$
Primary Use:	Crop nutrient
Responsible Party:	IMC Phosphates 100 South Saunders Road, Suite 300 Lake Forest, IL 60045-2561
Non-Emergency Technical Contact:	8:00 am – 4:00 pm Central Time, Mon - Fri: 800-323-5523 or 847-739-1200

EMERGENCY OVERVIEW

24 Hour Emergency Telephone Number:
For Chemical Emergencies:
Spill, Leak, Fire or Accident
Call CHEMTREC
North America: (800) 424-9300
Others: (703)527-3887 (collect)

Health Hazards:	Eye and skin irritant. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.
Physical Hazards:	Slippery when wet.
Physical Form:	Solid.
Appearance:	Gray, tan, black granules.
Odor:	Slight ammonia odor.

NFPA HAZARD CLASS		**HMIS HAZARD CLASS**	
Health:	2 (Moderate)	Health:	2 (Moderate)
Flammability:	0 (Least)	Flammability:	0 (Least)
Instability:	0 (Least)	Physical Hazard:	0 (Least)
Special Hazard:	None		

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	% Weight	Exposure Guideline		
		Limits	Agency	Type
Diammonium Phosphate CAS No. 7783-28-0 (pure dibasic ammonium phosphate)	85-87	NE	OSHA ACGIH	All
Ammonium Nitrate CAS No. 6484-52-2	<1.0	NE	OSHA ACGIH	All
Urea CAS No. 57-13-6	<1.0	NE	OSHA ACGIH	All
Iron, Aluminum and Magnesium Sulfates and Silicates CAS No. (various)	10-12	NE	OSHA ACGIH	All
Fluorides, as F * CAS No. (various)	1.5-2.5	2.5 mg/m^3	OSHA ACGIH	TWA
Sodium and Potassium Salts CAS No. (various)	0.8-1.2	NE	OSHA ACGIH	All
Moisture (Water) CAS No. 7732-18-5	0.5-3	NE	OSHA ACGIH	All

*A biological threshold limit of 2 mg of F/l in urine collected at the end of the work shift is recommended to prevent development of fluorosis. An increase of 1 mg F/l in urine over an 8-hour shift reportedly corresponds to a time-weighted average exposure of 0.5 mg F/m^3.

NE= Not established, but the following particulate limits apply to all inert inorganic dusts.

Particulates Not Otherwise Classified (PNOC)	10 mg/m^3 3 mg/m^3	ACGIH ACGIH	TWA-Inhalable TWA-Respirable
Particulates Not Otherwise Regulated (PNOR)	15 mg/m^3 5 mg/m^3	OSHA OSHA	TWA-Total Dust TWA-Respirable

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

3. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS	
Eye:	Eye irritant. Contact may cause stinging, watering, redness and swelling.
Skin:	Skin irritant. Contact may cause redness, itching, burning and skin damage. No harmful effects from skin absorption have been reported.
Inhalation (Breathing):	No information available. Studies by other exposure routes suggest a low degree of hazard by inhalation.
Ingestion (Swallowing):	Low degree of toxicity by ingestion.
Signs and Symptoms:	Effects of overexposure may include irritation of the nose, throat and digestive tract, nausea, vomiting, diarrhea, coughing and shortness of breath.
Cancer:	No data available.
Target Organs:	Inadequate data available for this material.
Developmental:	Inadequate data available for this material.
Other Comments:	Prolonged or repeated overexposure to fluoride compounds may cause fluorosis. Fluorosis is characterized by skeletal changes, consisting of osteosclerosis (hardening or abnormal density of bone) and osteomalacia (softening of bones) and by mottled discoloration of the enamel of teeth if exposure occurs during enamel formation. Symptoms may include bone and joint pain and limited range of motion. This material contains iron compound(s) of unknown composition. Effects of overexposure to dusts can include irritation of the eyes and respiratory tract, pneumoconiosis (dust congested lungs) pneumonitis (lung inflammation), coughing, vomiting, diarrhea, abdominal pain and jaundice.
Pre-Existing Medical Conditions:	Conditions aggravated by exposure may include skin disorders.

4. FIRST AID MEASURES

Eye:	If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water for at least 15 minutes. If symptoms persist, seek medical attention.
Skin:	Remove contaminated shoes and clothing, and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged. Cleanse affected area(s) thoroughly by washing with mild soap and water. If irritation or redness develops, seek medical attention.
Inhalation (Breathing):	If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.
Ingestion (Swallowing):	First aid is not normally required; however, if swallowed and symptoms develop, seek medical attention. Do not induce vomiting.
Note to Physicians:	No information found.

5. FIRE FIGHTING MEASURES

Flammable Properties:	Flash Point—Not applicable OSHA Flammability Class—Not applicable LEL/UEL—Not applicable Autoignition Temperature—Not applicable
Unusual Fire & Explosion Hazards:	DAP can release toxic and/or irritating ammonia and fluorides when subject to temperatures above 310°F in the presence of water or steam. When dry and heated rapidly, above 310°F, DAP will release ammonia.
Extinguishing Media:	Use extinguishing agent suitable for type of surrounding fire. Avoid excessive water to minimize runoff.
Fire Fighting Instructions:	For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential hazard is unknown, in enclosed or confined spaces, a self-contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8). Cool equipment exposed to fire with water, if it can be done with minimal risk. Avoid excessive water to minimize runoff.

6. ACCIDENTAL RELEASE MEASURES

DAP is a crop nutrient and plant food; however, large spills can harm or kill vegetation.

- Stay upwind and away from spill (dust hazard).
- Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8).
- Prevent spilled material from entering sewers, storm drains, other unauthorized treatment drainage systems, and natural waterways.
- Notify appropriate federal, state, and local agencies as may be required.
- Minimize dust generation.
- Sweep up and package appropriately for disposal.

7. HANDLING AND STORAGE

Handling:	The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Sections 2 & 8). Wash thoroughly after handling. Wash contaminated clothing/shoes. Use good personal hygiene practices.
Storage:	When possible store this material in cool, dry, well-ventilated areas to protect product quality. Keep container(s) tightly closed. Store only in approved containers, if applicable. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:	If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits (see Section 2), additional ventilation or exhaust systems may be required.

Personal Protective Equipment (PPE)	
Respiratory:	A NIOSH approved air purifying respirator with a type 95 (R or P) particulate filter may be used under conditions where airborne concentrations are expected to exceed exposure limits (see Section 2). Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a positive pressure air supplied respirator if there is potential for uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed if workplace conditions warrant a respirator.

Personal Protective Equipment (PPE)	
Skin:	The use of cloth or leather work gloves is advised to prevent skin contact, possible irritation and absorption (see glove manufacturer literature for information on permeability).
Eye/Face:	Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended. Depending on conditions of use, a face shield may be necessary.
Other PPE:	A source of clean water should be available in the work area for flushing eyes and skin. Impervious clothing should be worn as needed.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values in this section are determined at 20°C (68°F) and 760 mm Hg (1 atm).

Flash Point:	Not applicable
Flammable/ Explosive Limits (%):	LEL/UEL Not applicable
Autoignition Temperature:	Not applicable
Appearance:	Gray, tan, black granules or powder
Physical State:	Solid
Odor:	Slight ammonia
Molecular Weight of Pure Material:	132.055
pH:	7.4-8.0 in a 1% solution
Vapor Pressure (mm Hg):	0.9 @ 167°F
Vapor Density (air=1):	Not applicable
Boiling Point:	Not applicable
Freezing/Melting Point:	Decomposes at 310°F (155°C before melting)
Solubility in Water:	Very soluble (68-70 g / 100 g)
Specific Gravity:	1.5 – 1.7
Volatility:	Gradually loses up to 8% ammonia during long-term storage
Bulk Density:	58 – 60 lbs/ft^3 (930-960kg/m^3)

10. STABILITY AND REACTIVITY

Chemical Stability:	Stable under normal conditions of storage and handling. Gradually loses up to 8% ammonia during long-term storage. Decomposes at 310°F. Material is hygroscopic (May absorb moisture from air when relative humidity is greater than 82%).
Conditions to Avoid:	Possible violent reaction with magnesium and sodium hypochlorite.
Incompatible Materials:	Avoid contact with alkalis and heat.
Hazardous Decomposition Products:	When heated to decomposition, oxides of phosphorus, oxides of nitrogen (NO, NO_2, NO_x and ammonia (NH_3) vapors are released.
Corrisivity:	Corrosive to iron and mild steels, aluminum, zinc and copper.
Hazardous Polymerization:	Will not occur.

11. TOXICOLOGICAL INFORMATION

Diammonium Phosphate:	LD50 (oral, rat) = 6500 mg/kg, >2 g/kg; Inadequate mutagenicity, target organ or developmental toxicity data located for diammonium phosphate. No carcinogenicity data located for diammonium phosphate.
Iron Compounds/ Target Organ(s):	Chronic exposure to high concentrations of iron have been associated with hemosiderosis, hemochromatosis and in severe cases, liver cirrhosis. Typical occupational exposures to iron compounds are not expected to cause these effects. Chronic inhalation can produce "mottling" of the lungs (siderosis). This is considered a benign pneumoconiosis and does not normally lead to fibrosis or cause significant physiologic impairment.

12. ECOLOGICAL INFORMATION

Ecotoxicity:	May release ammonium ions that are toxic to fish. Unionized ammonia concentrations > 0.02 mg/l are considered toxic in fresh water. May release phosphates which will result in algae growth, increased turbidity, and depleted oxygen. At extremely high concentrations, this may be hazardous to fish or other marine organisms. Release to watercourses may cause effects downstream. LC50 Salmo gairdneri – 160-230 mg/l; LC 50 Pimephales promelas – 300-650 mg/1; LC50 Coho salmon fry = 90-580 mg/l; LC50 Coho salmon fingerling = 1,000->1,500mg/l; LC50 Rainbow trout fry = 150-700 mg/l; LC50 Rainbow trout fingerling = 1,000 mg/l; LC50 Fathead minnow = 940->1,000 mg/l; LC50 Bluegills = > 1,500 mg/l; LC50 Largemouth bass = 1,160->1,500 mg/l
BOD and COD:	No data found.

13. DISPOSAL CONSIDERATIONS

This material, if discarded as produced, is not an RCRA "listed" or "characteristic" hazardous waste. Contamination may subject it to hazardous waste regulations. Properly characterize all waste materials. Consult state and local regulations regarding the proper disposal of this material.

14. TRANSPORT INFORMATION

Hazard Class or Division:	Not listed in the hazardous materials shipping regulations (49 CFR, Table 172.101) by the U.S. Department of Transportation, or in the Transport of Dangerous Goods (TDG) Regulations Canada.

15. REGULATORY INFORMATION

CERCLA:	No
RCRA 261.33:	No
SARA Title III: (Exemptions at 40 CFR, Part 370 may apply for agricultural use, or quantities of less than 10,000 pounds on-site)	SARA 313 List: No
	SARA 311/312- Acute: Yes; Chronic: No; Fire: No; Pressure: No; Reactivity: No
	SARA 302/304 List- No
TSCA:	8(b) Chemical Inventory: Yes; TSCA 8(d): No
CA Proposition 65: (Health & Safety Code Section 25249.5)	Warning: This product contains substances that are known to the State of California to cause cancer and/or reproductive harm.
NTP, IARC, OSHA:	This material has not been identified as a carcinogen by NTP, IARC, or OSHA.
Canada DSL:	Yes
Canada NDSL:	No
WHMIS:	This MSDS has been prepared according to the hazard criteria of the Controlled Product Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. OTHER INFORMATION

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