



Effective Date: June 1, 2010

Material Safety Data Sheet

FOR EMERGENCY CALL CHEMTREC – (800) 424-9300

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Diammonium Phosphate (DAP)

CAS Number: 7783-28-0

Product Uses

Agricultural Industry: Fertilizer
Industrial Applications: Flame retardant agent.
Corrosion inhibitors.

Chemical Name: Ammonium phosphate, dibasic

Chemical Family: Ammonium phosphates

Synonyms and Common Trade Names: Ammonium phosphate; Diammonium hydrogen phosphate; dibasic ammonium phosphate; secondary ammonium phosphate; DAP

Company Identification

Manufacturer: CF Industries, Inc.
Address: 4 Parkway North, Suite 400
Deerfield, Illinois 60015-2590
Telephone: 847-405-2400



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2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	Weight Percentage	CAS Number
Diammonium phosphate	60-85	7783-28-0
Aluminum ammonium phosphates	4-10	Not applicable
Iron ammonium phosphates	3-5	Not applicable
Ammonium sulfate	4-5	7783-20-2
Fluorides, as F	2-3	Not applicable
Calcium ammonium phosphates	1-2	Not applicable
Water	1-3	7732-18-5
Ammonium Nitrate	<1	6484-52-2
Urea	<1	57-13-6
Miscellaneous metal, ammonium and other compounds	<1 each	Not applicable



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3. HAZARDS IDENTIFICATION

Emergency Overview

Caution! Eye and skin irritant. When heated to decomposition Diammonium phosphate may emit toxic fumes of phosphorous oxides, nitrogen oxides, fluorides and ammonia. Do not taste or swallow. Wash thoroughly after handling. Wear appropriate personal protection equipment. Slippery when wet.

Brown to black granules that are odorless or give off a slight ammonia odor.

Potential Health Effects

Eyes: Eye irritant. Contact may cause stinging, watering, redness and swelling.

Skin: Skin irritant. Contact may cause redness, itching, burning and skin damage. Contact may result in skin absorption but symptoms of toxicity are not anticipated by this route alone under normal conditions of use.

Inhalation: No information available. Studies by other exposure routes suggest a low degree of hazard by skin irritation.

Ingestion: Low to moderate degree of toxicity by ingestion.

Pre-Existing Medical Conditions: Pre-existing skin disorders may be aggravated by exposure to this material.

Signs and Symptoms: Effects of overexposure may include irritation of the nose, throat and digestive tract, nausea, vomiting, diarrhea, coughing and shortness of breath.

Late Toxicities:

Cancer: No data available

Target Organs: No data available.

Developmental and Reproductive System Effects: Inadequate data available.

Other Comments: Inorganic phosphates have been studied extensively due to their use as food additives. High oral doses (1% in the diet) have produced toxic effects on the bones, kidneys and parathyroid glands. The doses and route of exposure in these studies are not considered relevant to occupational settings.



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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.

4. FIRST AID

Eyes: Hold eyelids open and flush eyes immediately with water for at least 15 minutes. Seek medical attention if necessary.

Skin: Wash affected areas with soap and water. Remove contaminated clothing and shoes. Seek medical attention if necessary. Wash clothing and shoes before reuse.

Inhalation: 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: If person is conscious, immediately give water or milk (about 4 oz. For adults; too much may cause vomiting). Do not induce vomiting. Seek medical attention immediately. If person is unconscious, do not give anything by mouth.

Notes to Physician: If person has been exposed to concentrated decomposition products, treat symptomatically and watch for delayed symptoms of pulmonary edema. Intubation or tracheostomy may be necessary following severe exposure.



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5. FIRE FIGHTING MEASURES

Flammability:	Diammonium phosphate is not flammable or combustible.	
Flash Point (test method):	Not applicable	
Flammable Limits:	Not applicable	
Explosive Limits:	Not applicable	
Autoignition Temperature:	Not applicable	
Extinguishing Media:	Not applicable	
NFPA Fire Rating:	Flammability	0
	Health Hazard	1
	Reactivity	0
	Specific Hazard	Not applicable

KEY: Least=0 Slight=1 Moderate=2 High=3 Extreme=4

Special Firefighting Procedures: Firefighters should wear appropriate protective clothing and self-contained breathing apparatus with full-face piece operated in positive pressure mode because toxic gases (ammonia and, possibly, small amounts of phosphorus oxides and nitrogen oxides) can be emitted in fires.

Unusual Fire and Explosive 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.

Hazardous Combustion Products: Phosphorous oxides Nitrogen oxides. Ammonia. Fluorides.

6. ACCIDENTAL RELEASE MEASURES

Recover any reusable product, taking care not to generate excess dust. Dispose of in accordance with federal, state and local regulations.

Neutralizing Chemicals: Not applicable



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7. HANDLING AND STORAGE

Handling: The use of respiratory protection is advised when concentrations exceed any established exposure limits (see Section 8). Wash thoroughly after handling. Do not wear contaminated clothing or shoes. Use good personal hygiene practice.

Storage: Store in a cool, dry, ventilated area. Isolate from incompatible substances, particularly alkaline materials, as ammonia gas will be released.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation: Use process enclosure, general dilution ventilation or local exhaust systems, where necessary, to maintain airborne ammonia and dust concentrations below the OSHA standard or in accordance with applicable regulations.

Preventative Measures / Specific Personal Protective Equipment

Eyes: Safety glasses with side shields are recommended. Maintain eye wash fountain in work area.

Skin: The use of gloves impermeable to the specific material handled (including cotton, etc.) is advised to prevent excessive skin contact.

Respiratory: Protection is not required where ventilation is adequate. Use dust mask or other appropriate respiratory protection when engineering controls are not feasible or during operations that generate airborne concentrations exceeding the relevant standards. In closed areas, wear appropriate respiratory equipment, when necessary, to protect against ammonia fumes. A respiratory protection program that meets OSHA's 29 CFR 1910.134 requirements must be followed whenever workplace conditions warrant a respirator's use.

Other: None

Exposure Guidelines*



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Percentage volatile by volume (%):	Stable in air
Molecular weight:	132.07
Molecular formula:	$(\text{NH}_4)_2\text{HPO}_4$
Water/Oil Distribution Coefficient::	Not determined

10. STABILITY AND REACTIVITY

Stability (thermal, light, etc.): Stable under ordinary conditions of use and storage.

Incompatibility (Materials to avoid): Contact with high pH or alkaline materials (e.g., sodium hypochlorite) may cause Diammonium phosphate to emit ammonia.

Hazardous Decomposition Products: Gradually loses ammonia when exposed to air at room temperature. Decomposes to ammonia and monoammonium phosphate at around 70°C (158°F). At 155°C (311°F), DAP emits phosphorus oxides, nitrogen oxides and ammonia.

Hazardous Polymerization: Will not occur.

Conditions to Avoid: Avoid contact with alkaline materials.



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11. TOXICOLOGICAL INFORMATION

Irritancy: Eye and skin irritant

Acute Oral Effects: Oral LD50 > 2,000 mg/kg (rats)

Acute Dermal Effects: Dermal LD50 > 5,000 mg/kg (rats)

There is no definitive information available on carcinogenicity, mutagenicity, target organs or developmental toxicity for this product.

Sensitization Capability: No data available.

Synergistic Chemicals: No data available.

Genetic Toxicity: Negative results in both gene mutation and chromosomal aberration in-vitro assays.

Human Experience: DAP is affirmed as “generally recognized as safe” (GRAS) for use as a food additive for both human food and ruminant feed according to prescribed conditions.

Chronic Toxicity: No carcinogenicity data available.

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.



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12. ECOLOGICAL INFORMATION

Can be harmful to aquatic life at high concentrations. Large-scale release may lead to eutrophication of waterways. Notify local health and wildlife officials and operators of any nearby water intakes upon contamination.

Ecotoxicity Information:

The acute toxicity of Diammonium phosphate is slightly toxic to practically non-toxic for both freshwater fish and invertebrates. The 96-hour LC_{50} for fathead minnows is 156 mg/L (static and flow-through bioassays), the 96-hour LG_{50} for rainbow trout is 172 mg/L (flow-through bioassay), and the 96-hour LC_{50} for coho salmon is 245 mg/L (static bioassay). The 96-hour LC_{50} for bluegills is 1,500 mg/L (static Bioassay),. The 96-hour LC_{50} for large mouth bass is 1,160-1,500 mg/L (static bioassay). The 96-hour LC_{50} for mature scuds/sideswimmers is 40 mg/L (static bioassay). No toxicity observed in aquatic algae (*Selenastrum*) at concentrations up to 97.1 mg/L. DAP is not toxic to algae but can stimulate algal growth.

Environmental Fate Information:

Diammonium phosphate is considered biodegradable and is taken up as a nutrient by vegetation.

13. DISPOSAL CONSIDERATIONS

Diammonium phosphate is not considered a hazardous waste under Federal Hazardous Waste Regulations 40 CFR 261. Consult local, state or federal environmental regulatory agencies for acceptable disposal procedures and locations. Follow standard disposal procedures.

14. TRANSPORT INFORMATION

Diammonium phosphate is not listed as a hazardous material by the U.S. Department of Transportation (DOT), Transport Canada, the International Maritime Organization (IMO) or the United Nations (UN).

Proper Shipping Name: Chemicals, N.O.S. (non-regulated)



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15. REGULATORY INFORMATION

OSHA (Occupational Safety and Health Administration): This material is considered to be hazardous as defined by the OSHA Hazard Communication Standard.

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act): This product does not contain Reportable Quantity substances.

SARA TITLE III (Superfund Amendment and Reauthorization Act of 1986): No federal requirements. User should contact local and state regulatory agencies for information on additional or more stringent reporting requirements.

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Sections 311/312: This product has been reviewed according to the USEPA "Hazard Categories" promulgated under Sections 311 and 312 of SARA Title III and is considered, under applicable definitions, to meet the following categories:

Acute: yes Chronic: no Fire: no Reactivity: no

DOT (Department of Transportation): Please refer to Section 14 (Transport Information) for guidance concerning transportation.

This material has not been identified as a carcinogen by NTP, IARC or OSHA.

16. DOCUMENTARY INFORMATION AND DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Issue Date: 06/01/10

Previous Issue Date: 07/01/06

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