

NFPA Classification	DOT / TDG Pictograms	WHMIS Classification	HMIS		PROTECTIVE CLOTHING
			Health	1	
			Flammability	0	
			Reactivity	0	
			PPE	A	

## Section I. Chemical Product and Company Identification

**PRODUCT NAME/ TRADE NAME** International Plant Food 18-4-8 Americus

**SYNONYM** This MSDS is applicable to all Agrium International Plant Foods containing Ammonium Phosphate (MAP or DAP), Potash, Ammonium Sulfate and depending on formulation, Ammonium Nitrate, with more than 1% by weight of compounds containing Iron. **MSDS NUMBER:** 16017a

**CHEMICAL NAME** Not applicable. A homogenously granulated product. **REVISION NUMBER** 1.3

**CHEMICAL FAMILY** Ammonium salt. **MSDS prepared by** the Environment, Health and Safety Department on: August 30, 2010

**CHEMICAL FORMULA** Not applicable.

**MATERIAL USES** Agricultural industry: Fertilizer.

**24 HR EMERGENCY TELEPHONE NUMBER:**

Transportation: 1-800-792-8311  
Medical: 0-303-389-1653 Collect

### MANUFACTURER

Agrium  
North American Wholesale  
13131 Lake Fraser Drive, S.E.  
Calgary, Alberta, Canada, T2J 7E8

Agrium U.S. Inc.  
Suite 1700, 4582 South Ulster St.  
Denver, Colorado, U.S.A., 80237

### SUPPLIER

Agrium  
North American Wholesale  
13131 Lake Fraser Drive, S.E.  
Calgary, Alberta, Canada, T2J 7E8

Agrium U.S. Inc.  
Suite 1700, 4582 South Ulster St.  
Denver, Colorado, U.S.A., 80237

## Section II. Hazardous Ingredients

NAME	CAS #	Exposure Limits (ACGIH)						% by Weight
		TLV-TWA mg/m <sup>3</sup>	TLV-TWA ppm	STEL mg/m <sup>3</sup>	STEL ppm	CEIL mg/m <sup>3</sup>	CEIL ppm	
Monoammonium phosphate	7722-76-1	----						0-70
Diammonium phosphate	7783-28-0	---						0-70
Ammonium nitrate	6484-52-2	---						0-10
Ammonium sulfate	7783-20-2	----						10-30
Potassium chloride	7447-40-7	----						10-30
Iron oxide	1309-37-1	5 (R)						0-1

### ACGIH TLV notations:

---- No assigned TLV

(C) - Ceiling - the concentration not to be exceeded at any time

(I) - measured as the Inhalable fraction of the aerosol

(R) - measured as the Respirable fraction of the aerosol

(T) - measured as the Thoracic fraction of the aerosol

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**TOXICOLOGICAL DATA ON INGREDIENTS****Monoammonium Phosphate (MAP) TFI Product Testing Program:**

Acute oral LD<sub>50</sub>, rat, OECD 425 protocol: >2,000 mg/kg. MAP is not acutely toxic by the oral route of exposure.  
Acute dermal LD<sub>50</sub>, rat, OECD 402 protocol: >5,000 mg/kg. MAP is not acutely toxic by the dermal route of exposure.

**Dibasic Ammonium phosphate (DAP)**

TFI Product Testing Results, OECD 402 acute dermal toxicity: LD<sub>50</sub>: > 5,000 mg/kg rat, not acutely toxic

TFI Product Testing Results, OECD 425 acute oral toxicity: LD<sub>50</sub>: > 2,000 mg/kg rat, not acutely toxic

TFI Product Testing Results, OECD 201 green algae acute toxicity testing, no toxicity observed at up to 97.1 mg/L (highest conc tested); growth stimulated at 6.4 mg/L and higher.

**Ecotoxicity:**

Acute fish toxicity, 96hr LC<sub>50</sub>, rainbow trout, OECD 203 protocol: >85.9 mg/L. The acute toxicity of MAP to fish is low.

**Ammonium Sulfate TFI Product Testing Program Results:**

Acute oral LD<sub>50</sub>: 640-4,250 mg/kg (rat, mouse)

Acute dermal LD<sub>50</sub>: >2,000 mg/kg (rat, mouse)

**Ecotoxicity:**

Acute toxicity to fish, various species, 96 hr LC<sub>50</sub>: >13.6-159.8 mg total NH<sub>3</sub>/L

Acute toxicity to aquatic invertebrates, Daphnia, 96 hr LC<sub>50</sub>: >27 mg total NH<sub>3</sub>/L

**Ammonium Nitrate:<sup>^</sup>**

Rat oral LD50: 4500 mg/kg. [Peer Reviewed] [Environment Canada;Tech Info for Problem Spills: Ammonium Nitrate (Draft) p.59 (1981)]

Rat oral LD50: 2217 mg/kg (Rat) [Gigiena i Sanitariya. For English translation, see HYSAAV. (V/O Mezhdunarodnaya Kniga, 113095 Moscow, USSR) V.1- 1936- (52(8),25,1987)]

Huntingdon Research Center Testing Results (3 studies), OECD Guide 401: 2462- 2900 mg/kg (rat oral)

TFI Product Testing Results, OECD Guideline 402: > 5,000 mg/kg acute dermal LD<sub>50</sub>, rat,

Bacterial reverse mutation assay: negative, with and without metabolic activation, (Salmonella)

Developmental teratogenicity: Not teratogenic to rats. NOAEL >57 mg/kg

**Ecotoxicity Values:**

Acute fish toxicity: Chinook salmon, rainbow trout, bluegill: 96hr LC<sub>50</sub> = 420-1360 mg NO<sub>3</sub>/L

Acute toxicity to aquatic invertebrates: Daphnia magna EC<sub>50</sub> = 555mg/L

Acute toxicity to aquatic plants (algae): Scenedesmus quadricauda EC<sub>50</sub> = 83mg/L

LD50 Aspergillus niger (fungus) 15 mg/l/40 hr (36 deg C). [Peer Reviewed] [Environment Canada; Tech Info]

**Potash TFI Product Testing Program Results:**

Acute oral toxicity: 2,600 mg/kg rat; 1,500 mg/kg mouse

**Ecotoxicity:**

Acute toxicity to fish, species unspecified, LC<sub>50</sub>, 96hr: 2,010 mg/L

Acute toxicity to invertebrates, Daphnia, 48hr TLM 337mg/L

**Iron oxide:**

Rat inhalation (TCLo): 0.5mg/m<sup>3</sup> continuous, 61 days RTECS.

**Section III. Hazards Identification.****POTENTIAL ACUTE HEALTH EFFECTS**

This product may irritate eyes and skin upon prolonged or repeated contact due to mechanical or desiccant action. Over-exposure by inhalation may cause respiratory tract irritation. Ingestion of this substance may produce irritation of the gastro-intestinal tract, characterized by burning and diarrhea.

**For nitrate containing formulations only:**

May interfere with the oxygen carrying capacity of the blood if ingested in large quantities or over a prolonged period of time. Persons with anemia, bowel diseases, or infants, are more likely to develop effects. Over-exposure by ingestion is unlikely under normal working conditions. Inhalation of dusts may cause respiratory irritation. This product may irritate eyes and skin upon contact but is unlikely to injure tissue. Symptoms of overexposure may include:

Cardiovascular: methemoglobinemia, low blood pressure (hypotension), irregular heart beat (arrhythmia), shock (vasodilation)

CNS: headache, dizziness, generalized tingling sensation (parasthesia)

Gastrointestinal: nausea, vomiting, diarrhea, abdominal pain

<b>POTENTIAL CHRONIC HEALTH EFFECTS</b>	Eye: redness and inflammation (conjunctivitis) Skin: bluish discoloration (cyanosis) with profuse sweating following ingestion or irritation and flushed skin following contact with moist skin surfaces.
	<b>CARCINOGENIC EFFECTS:</b> NONE by ACGIH, EPA, IARC, NTP, OSHA. <b>MUTAGENIC EFFECTS:</b> NONE by ACGIH, EPA, IARC, NTP, OSHA. <b>TERATOGENIC EFFECTS:</b> NONE by ACGIH, EPA, IARC, NTP, OSHA.
	For nitrate containing formulations only: Repeated or prolonged overexposure by ingestion can reduce the oxygen carrying capacity of the blood producing anoxia in infants or individuals with preexisting bowel or blood diseases.

**Section IV. First Aid Measures**

<b>EYE CONTACT</b>	May cause eye irritation. Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Obtain medical attention if irritation persists.
<b>MINOR SKIN CONTACT</b>	May cause skin irritation. Wash contaminated skin with soap and water. Cover dry or irritated skin with a good quality skin lotion. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.
<b>EXTENSIVE SKIN CONTACT</b>	No additional information.
<b>MINOR INHALATION</b>	Repeated or prolonged inhalation of dust may lead to respiratory irritation. Loosen tight clothing around the individual's neck and waist. Allow the person to rest in a well ventilated area. Obtain medical attention if irritation persists.
<b>SEVERE INHALATION</b>	In emergency situations use proper respiratory protection to evacuate affected individuals to a safe area as soon as possible. Loosen tight clothing around the person's neck and waist. Oxygen may be administered if breathing is difficult. If the person is not breathing, perform artificial respiration. Obtain immediate medical attention.
<b>SLIGHT INGESTION</b>	Do not induce vomiting. Quickly transport the person to an emergency care facility. Removal of the substance from the stomach must be done by medical personnel. If tolerated, give no more than 1 cup of milk or water (or 1/2 cup for children) to rinse the mouth and throat and dilute the stomach contents.  If spontaneous vomiting does occur, lower the head so that the vomit will not reenter the mouth and throat. Rinse mouth with water.
<b>EXTENSIVE INGESTION</b>	No additional information.

**Section V. Fire and Explosion Data**

<b>THE PRODUCT IS</b>	Non-flammable.
<b>AUTO-IGNITION TEMPERATURE</b>	Not applicable.
<b>FLASH POINT</b>	Not applicable.
<b>FLAMMABILITY LIMITS</b>	Not applicable.
<b>PRODUCTS OF COMBUSTION</b>	Material will not burn. Undergoes thermal decomposition at elevated temperatures to release toxic and combustible gases: ammonia, nitrogen oxides, sulfur oxides, phosphorous oxides.
<b>FIRE HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES</b>	Not applicable.
<b>EXPLOSION HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES</b>	This product is non-explosive.
<b>FIRE FIGHTING MEDIA AND INSTRUCTIONS</b>	Material will not burn. Undergoes thermal decomposition at elevated temperatures to release toxic and combustible gases. Use extinguishing media suitable for surrounding materials. Fire fighters should wear self-contained breathing apparatus (SCBA) and full turnout gear.

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**SPECIAL REMARKS ON FIRE HAZARDS**

Non combustible. Flammable/toxic gases will form at elevated temperatures (>190 °C) by thermal decomposition (ammonia, sulfur oxides, nitrogen oxides, phosphorus oxides). A self contained breathing apparatus should be used to avoid inhalation of toxic fumes.

**SPECIAL REMARKS ON EXPLOSION HAZARDS**

No additional remark.

**Section VI. Accidental Release Measures**

**SMALL SPILL**

Use appropriate tools to put the spilled solid in a suitable container for intended use or disposal.

**LARGE SPILL**

Prevent additional discharge of material, if possible to do so without hazard. Prevent spills from entering sewers, watercourses, wells, etc. Product will promote algae growth and may degrade water quality and taste. Notify downstream water users. Sulfate in potable drinking water should be maintained below 250 mg/L. Will dissolve and disperse in water. Nitrate in potable drinking water should be maintained below 10 mg/L. Reclaiming material may not be viable. Recover and place material in suitable containers for recycle, reuse, or disposal. Ensure disposal is in compliance with government requirements and local regulations.

**Section VII. Handling and Storage**

**PRECAUTIONS**

Avoid contact with skin and eyes. After handling, always wash hands thoroughly with soap and water. Do not breathe dust. Keep away from food, drink and animal feed. Avoid contact with incompatible substances. Keep out of reach of children.

**STORAGE**

Store in a dry, cool and well ventilated area.

**Section VIII. Exposure Controls/Personal Protection**

**ENGINEERING CONTROLS**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**PERSONAL PROTECTION**

The selection of personal protective equipment varies, depending upon conditions of use. Where skin and eye contact may occur as a result of brief periodic exposures, wear long sleeved clothing, coveralls, chemical resistant gloves, and safety glasses with side shields.

Wear appropriate respiratory protection for dust/mist when ventilation is inadequate. A filtering facepiece dust mask is appropriate for most applications. A NIOSH approved full facepiece or half mask dust respirator with N-100 or P-100 filters should be used under conditions where airborne concentrations may exceed occupational exposure limits.

If the use of non-disposable half or full facepiece respirators is warranted, a respiratory protection program that meets OSHA 29 CFR 1910.134 requirements must be followed.

**PERSONAL PROTECTION IN CASE OF LARGE RELEASE**

No additional information.

**EXPOSURE LIMITS**

Iron oxide:  
ACGIH TLV-TWA 5 mg/m<sup>3</sup> as respirable dust  
Fed OSHA Permissible Exposure Limit: Table Z-1 8-hr Time Weighted Avg: 10 mg/m<sup>3</sup> as fume

OSHA PEL: 15 mg/m<sup>3</sup> for Particulates Not Otherwise Regulated (nuisance particulates) as total dust.

Federal, State, and Provincial exposure limits may vary. Consult local officials for acceptable exposure limits in your jurisdiction.

**Section IX. Physical and Chemical Properties**

<b>PHYSICAL STATE AND APPEARANCE</b>	Solid granules.		
<b>MOLECULAR WEIGHT</b>	Not applicable.	<b>COLOR</b>	Grey.
<b>pH (10% SOLN/WATER)</b>	~5	<b>ODOR</b>	Odorless.
<b>BOILING POINT</b>	Decomposes.	<b>ODOR THRESHOLD</b>	Not applicable
<b>MELTING POINT</b>	Not available	<b>TASTE</b>	Acrid and saline.
<b>CRITICAL TEMPERATURE</b>	Not available.	<b>VOLATILITY</b>	Not applicable.
<b>SPECIFIC GRAVITY g/cc</b>	<1 (Water = 1)	<b>SOLUBILITY</b>	Easily soluble in hot water. Soluble in cold water.
<b>BULK DENSITY kg/m<sup>3</sup> ; lbs/ft<sup>3</sup></b>	Variable depending on formulation	<b>DISPERSION PROPERTIES</b>	See solubility in water.
<b>VAPOR PRESSURE</b>	Not applicable.	<b>WATER/OIL DIST. COEFF.</b>	Not available.
<b>VAPOR DENSITY</b>	Not applicable.		

**Section X. Stability and Reactivity Data**

<b>STABILITY</b>	The product is stable.
<b>INSTABILITY TEMPERATURE</b>	Not available.
<b>CONDITIONS OF INSTABILITY</b>	No additional remark.
<b>INCOMPATABILITY WITH VARIOUS SUBSTANCES</b>	Slightly reactive with oxidizing agents, metals, alkalis, and moisture.
<b>CORROSIVITY</b>	Corrosive to aluminum, zinc, and copper. Slightly corrosive to steel, and 304 stainless steel. Non-corrosive to 316 stainless steel.
<b>SPECIAL REMARKS ON REACTIVITY</b>	Avoid contact with moisture. Hygroscopic. Material will absorb moisture impairing flowability. Hydrolysis will slowly produce acids corrosive to metals.
<b>SPECIAL REMARKS ON CORROSIVITY</b>	Incompatible with copper alloys. Corrosive to brass. Corrosive to ferrous metals and alloys. Contact your sales representative or a metallurgical specialist to ensure compatibility with your equipment.

**Section XI. Toxicological Information**

<b>SIGNIFICANT ROUTES OF EXPOSURE</b>	Ingestion. Inhalation.
<b>TOXICITY TO ANIMALS</b>	See Section II.
<b>SPECIAL REMARKS ON TOXICITY TO ANIMALS</b>	Will release ammonium ions. Ammonia is a toxic hazard to fish. Avoid spills or release to watercourses. May be harmful to livestock and wildlife if ingested. Clean up all spilled material, especially where bulk fertilizer loading of equipment occurs. The product itself and its products of degradation are not harmful under normal conditions of careful and responsible use. Will release ammonium ions. Ammonia is a toxic hazard to fish. Avoid spills or release to watercourses.
<b>OTHER EFFECTS ON HUMANS</b>	Our data base contains no additional remark on the toxicity of this product
<b>SPECIAL REMARKS ON CHRONIC EFFECTS ON HUMANS</b>	No additional remark.

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<b>SPECIAL REMARKS ON OTHER EFFECTS ON HUMANS</b>	No additional information.
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**Section XII. Ecological Information**

<b>ECOTOXICITY</b>	<p>Low toxicity for humans or animals under normal conditions of use. May be harmful to livestock and wildlife if ingested. Clean up all spilled material, especially where bulk fertilizer loading of equipment occurs to prevent animal exposure.</p> <p>Aquatic/Marine Toxicity: Will release ammonium ions. Ammonia is a toxic hazard to fish. Avoid spills or release to watercourses. Will disperse with current. Release to watercourses may cause effects down stream from the point of release. U.S. D.O.T.: This material NOT listed as a Marine pollutant.</p>
<b>BOD and COD</b>	Not available.
<b>PRODUCTS OF DEGRADATION</b>	Nitrogen oxides (NO,NO <sub>2</sub> ...), sulfur oxides (SO <sub>2</sub> , SO <sub>3</sub> ...), phosphates, inorganic mineral salts and oxides.
<b>TOXICITY OF THE PRODUCTS OF DEGRADATION</b>	The products of biodegradation are not harmful under normal conditions.
<b>SPECIAL REMARKS ON THE PRODUCTS OF DEGRADATION</b>	Product will promote algae growth which may degrade water quality and taste. Notify downstream water users. Sulfate in potable drinking water should be maintained below 250 mg/L. Nitrate in potable drinking water should be maintained below 10mg/L. Will dissolve and disperse in water. Reclaiming material may not be viable.

**Section XIII. Disposal Considerations**

<b>WASTE DISPOSAL OR RECYCLING</b>	Recover and place material in a suitable container for intended use or disposal. Ensure disposal complies with government requirements and local regulations.
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**Section XIV. Transport Information**

<b>DOT / TDG CLASSIFICATION</b>	<p>Not controlled under TDG (Canada) or D.O.T. (U.S.A.) unless granulated with Ammonium Nitrate, and transported by air or water. Not subject to the requirements of the Hazardous Materials Regulations 49 CFR Parts 171-180 for rail or vehicular transport.</p> <p>For ammonium nitrate containing products, transported by air or water:</p> <p>Class 9, UN2071, III. Proper shipping name: "Ammonium nitrate fertilizer; uniform non-segregating mixtures of nitrogen/phosphate or nitrogen/potash types or complete fertilizers of nitrogen/phosphste/potash type, with not more than 70% ammonium nitrate and not more than 0.4 percent total added combustible material or with not more than 45% ammonium nitrate with unrestricted combustible material.</p>
<b>PIN and Shipping Name</b>	See above.
<b>SPECIAL PROVISIONS FOR TRANSPORT</b>	Not applicable, unless transported by air or water. If transported by air or water: 132, IB8.
<b>DOT (U.S.A) (Pictograms)</b>	

**Section XV. Other Regulatory Information and Pictograms**

**OTHER REGULATIONS** CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): This product is on the Domestic Substances List (DSL), and acceptable for use under the provisions of CEPA.  
 TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory.  
 CERCLA/SUPERFUND, 40 CFR 117,302: This product contains no Reportable Quantity (RQ) Substances.  
 This product is not considered as a priority pollutant as regulated under the Clean Water Act.

This material contains the following chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372:  
 Aqueous ammonia from water dissociable ammonium ions, 10% of which is reportable as CAS#7783-20-2 and as CAS#7722-76-1 and/or 7783-28-0. Ammonium nitrate CAS# 6484-52-2 may be present in your formulation. Refer to EPA documents 745-R-00-005 and 745-R-00-006, and the specific product analysis for your product to determine your reporting requirements under this regulation.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by the Controlled Products

<b>OTHER CLASSIFICATIONS</b>	<b>HCS (U.S.A.)</b>	Not controlled under the HCS (United States).
	<b>DSCL (EEC)</b>	Not controlled under DSCL (Europe).

<b>National Fire Protection Association (U.S.A.)</b>	Hazards presented under acute emergency conditions only:		<b>Fire Hazard</b>
			<b>Reactivity</b>
			<b>Specific Hazard</b>

<b>TDG (Pictograms - Canada)</b>	
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<b>DSCL (Europe) (Pictograms)</b>	
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<b>ADR (Europe) (Pictograms)</b>	
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**Section XVI. Other Information**

**REFERENCES**

- Transportation of Dangerous Goods Act and Clear Language Regulations, current revision.
- Canada Gazette Part II, Vol. 122, No. 2 Registration SOR/88-64 31 December, 1987 Hazardous Products Act "Ingredient Disclosure List".
- Domestic Substances List, Canadian Environmental Protection Act.
- 29 CFR Part 1910
- 33 CFR Parts 151, 153, 154, 156
- 40 CFR Parts 1-799
- 46 CFR Part 153
- 49 CFR Parts 1-199
- American Conference of Governmental Industrial Hygienists, Threshold Limit Values for Chemical Substances, 2009.
- NFPA 704, National Fire Codes Online, National Fire Protection Association, current edition at time of MSDS preparation.
- Corrosion Data Survey, Sixth Edition, 1985, National Association of Corrosion Engineers

-CHRIS Hazardous Chemical Data: U.S. Coast Guard, Washington, D.C.  
 -HSDB: Hazardous Substances Data Bank. National Library of Medicine, Bethesda, Maryland  
 -IRIS: Integrated Risk Information System. U.S. Environmental Protection Agency, Washington, D.C.  
 -NIOSH: Pocket Guide to Chemical Hazards. National Institute for Occupational Safety and Health, Cincinnati, Ohio  
 -OHM/TADS: Oil and Hazardous Materials Technical Assistance Data System. U.S. Environmental Protection Agency, Washington, D.C.  
 -RTECS®: Registry of Toxic Effects of Chemical Substances. National Institute for Occupational Safety and Health, Cincinnati, Ohio  
 -The Fertilizer Institute Product Testing Program Results, March 2003

**OTHER SPECIAL CONSIDERATIONS**

24 Hr Medical Emergency Contact Number changed.

**FOR FURTHER SAFETY, HEALTH, OR ENVIRONMENTAL INFORMATION ON THIS PRODUCT, CONTACT**

**AGRIUM**  
 Wholesale Environment, Health and Safety  
 Telephone (780) 998-6906 or Fax (780) 998-6677

**NOTICE TO READER**

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