

Material Safety Data Sheet

Produce Name: **Harp-N-Tek 18-18-18 plus micronutrients**

Date Prepared: July 23, 2009

Chemical Identity: Harpin $\alpha\beta$ protein with fertilizers

Section I -- Manufacturer

Plant Health Care, Inc. **Emergency Phone #:** 800-421-9051
 285 Kappa Drive, Suite 100 **Phone # for Information:** 412-826-5488
 Pittsburgh, PA 15238

Section II -- Hazardous Ingredients/Identity Information

MATERIAL	CAS #	OSHA PEL	ACGIH TLV
Urea	57-13-6	Not Established	Not Established
Potassium Nitrate	7757-79-1	Not Established	Not Established
(containing up to 5% sodium nitrate)	7631-99-4	Not Established	Not Established
Monopotassium Phosphate	7778-77-0	Not Established	Not Established
Citric Acid	15245-12-2	Not Established	Not Established
Boric Acid	10043-35-3	Not Established	Not Established
Copper EDTA	14025-15-1	Not Established	Not Established
Manganese EDTA	15375-84-5	-	-
(Manganese compounds, as Mn)		5 mg/m ³ Ceiling	0.2 mg/m ³
Iron EDTA	15708-41-5	Not Established	Not Established
(Iron Compounds as Fe)		10 mg/m ³ Total	5 mg/m ³ (respirable)
Zinc EDTA	14025-21-9	Not Established	Not Established
(Zinc Compounds as Zn)		10 mg/m ³ Total	5 mg/m ³ (respirable)
Ammonium Molybdate	7631-95-0		
(Molybdenum compounds as Mo)		5mg/m ³	5mg/m ³
Sodium Thiosulfate	10102-17-7 or 7772-98-7	Not Established	Not Established
Harpin $\alpha\beta$ protein	None	Not Established	Not Established
Nuisance Dust			
Respirable (TWA)		5 mg/m ³	3 mg/m ³
Total (TWA)		15 mg/m ³	10 mg/m ³

Note: Product coating is expected to minimize airborne exposure.

Section III -- Physical/Chemical Characteristics

Boiling Point: NA **Bulk Density:** 45-47 Lb/ft³ (0.75 g/cc)
Vapor Pressure: NA **Melting Point:** Decomposes on Heating
Vapor Density: NA **Evaporation Rate:** NA
Solubility in Water: 100% @ 180 F **pH:** 5.4 (10% Aqueous solution)
Appearance and Odor: Aqua-blue powder with slight yeast odor.

Section IV -- Fire and Explosion Hazard Data

Flash Point: No Data **Flammable Limits; LEL:** No Data; **UEL:** No Data
Extinguishing Media: Water
Special Fire Fighting Procedures: Apply water from a safe distance to avoid splattering of molten material. Wear self-contained breathing apparatus to fight large fires.

MSDS—Harp-N-Tek 18-18-18

Unusual Fire and Explosion Hazards: This product is comprised of materials which are oxidizers in their pure, unmixed forms. It will not burn but can provide oxygen for existing fires and cause combustible materials to ignite explosively.

Material decomposes on heating to emit toxic oxides of nitrogen, carbon, and potassium as well as ammonia, biuret, and cyanuric acid. High airborne dust concentrations have the potential for explosion.

In case of Fire: Evacuate area. Flood with water to cool containers. Apply water from a safe distance to avoid splattering of molten material. Wear self-contained breathing apparatus to fight large fires.

Section V -- Reactivity Data

Stability: Chemically stable

Conditions to Avoid: Extreme heat.

Incompatibility (Materials to avoid): Nitrates are incompatible with strong alkalis and reducing agents, active metals (such as aluminum and magnesium), ammonia, organic, and combustible materials.

Monoammonium phosphate is incompatible with sodium hypochlorite.

Urea is incompatible with strong oxidizers alkalis, sodium nitrite, and many chlorine compounds (including bleach and other household cleaning products).

Hazardous Decomposition or Byproducts: In a fire, oxides of nitrogen, potassium, and carbon as well as ammonia, biuret, and cyanuric acid are possible.

Hazardous Polymerization: Will Not Occur

Section VI -- Health Hazard Data

Summary of Risks: Prolonged or repeated direct contact with fertilizer may irritate eyes and skin. Inhalation of dust may irritate nose, throat, and lungs. Prolonged exposure may cause weakness, depression, headache, mental impairment, anemia, methemoglobinemia, and kidney injury. Ingestion of product can cause severe gastrointestinal irritation, muscular weakness, and blue-tinged skin (cyanosis). Infants and children are especially at risk for cyanosis. Ingestion of large amounts may result in death.

One experimental study of mice and rats fed large doses of urea (394 gm/kg and 821 gm/kg over a period of one year) produced tumors of the blood-forming organs. Human reproductive effects have been reported at high doses by intraplacental route. Mutagenic effects are also reported.

Urea is moderately toxic by ingestion. It may cause headache, nausea, and vomiting. Other possible effects are disorientation, nervousness, hypertension, hypothermia, and cardiac effects.

First Aid:

Eyes: If in eyes, flush with water for 15 minutes holding eyelids open. Get medical attention if irritation persists.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. Have conscious person drink 1 to 2 glasses of water, then induce repeated vomiting until vomit is clear. Call physician.

Skin: Wash with plenty of soap and water.

Inhalation: Remove to fresh air. Treat symptomatically.

NFPA Hazard Ratings		
Health	2	0 Least
Flammability	0	1 Slight
Reactivity	2	2 Moderate
		3 High
		4 Severe

Signs and Symptoms of Exposure:

Target Organs: Skin, eyes, respiratory tract, gastrointestinal tract, and central nervous system.

Primary Entry Route(s): Ingestion, inhalation.

Chronic Effect(s): A study of 67 workers in an environment with high airborne concentrations of urea found a high incidence of protein metabolism disturbances, moderate emphysema, and chronic weight loss.

Acute Effect(s): Excessive inhalation of dust may cause irritation and coughing. Prolonged skin contact with product may cause mild irritation.

Medical conditions which may be aggravated by contact: Skin abrasions and sores. Inhalation of dust may aggravate asthma.

Carcinogenicity:

IARC Monographs: No NTP: No OSHA: No

Section VII -- Precautions for Safe Handling and Use

Storage: Store in a cool, dry area away from incompatible materials and heat sources. Store away from feed and foodstuffs, as well as household cleaning products. Wash hands with soap and water after handling product. Keep out of reach of children.

Steps to be Taken in Case Material is Released or Spilled: Avoid dusting or misting conditions during cleanup. If material is uncontaminated, collect and reuse as recommended for product. If contaminated, put in appropriate container and dispose. Keep spills away from drinking water supplies. After cleaning up spill, flush area with water.

Waste Disposal Method: Apply as fertilizer to field. If product is contaminated, dispose of in an approved landfill disposal facility, in accordance with applicable federal, provincial, and local regulations.

Precautions to be Taken When Handling Material: Wash hands with soap and water after handling product. Keep out of reach of children.

Section VIII – Personal Protection

Respiratory Protection: If airborne dust levels are high or product does not remain intact, use a combination of engineering controls (e.g. ventilation) and personal protection (e.g. NIOSH/MSHA approved respirator for dusts, mists, and fumes) to reduce exposures to acceptable levels.

Protective Gloves: None required for normal use. If prolonged or repeated use irritates skin, use neoprene or PVC gloves.

Eye Protection: None required for routine use as fertilizer. High airborne dust levels or mists of product dissolved in liquid may be irritating; use chemical goggles.

Work/Hygienic Practices: Wash hands after handling. If spilled on clothes, wash as usual.

Workplace Considerations:

Ventilation: Ventilation and personal protection are recommended whenever dust levels are high or product does not remain intact.

Safety Stations: Running water should be available in case material gets in eyes.

Section IX - Regulatory Information

DOT Classification: Not DOT regulated. **EPA Reg. No.:** 71771-7

Other Information:

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