

**MATERIAL SAFETY DATA SHEET  
FOR  
THORN SMITH LABORATORIES  
ANALYZED QUANTITATIVE UNKNOWNNS**

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Phosphate Rock for P<sub>2</sub>O<sub>5</sub>  
Catalog Number 80-1425

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Manufacturer: Auric Enterprises, Inc.  
d/b/a Thorn Smith Laboratories  
Address: 7755 Narrow Gauge Road  
Beulah, MI 49617  
Phone Number: 231-882-4672  
MSDS Number: TSL-026  
Date Prepared: November 5, 1993  
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**SECTION 1 - MATERIAL IDENTIFICATION AND INFORMATION**

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COMPONENTS - Chemical Name & Common Names  
(Hazardous Components 1% or greater; Carcinogens 0.1% or greater)

Tricalcium Phosphate

Formula: Ca<sub>5</sub>OH(PO<sub>4</sub>)<sub>3</sub>  
Common Synonyms: Calcium hydroxyapatite, IG-TCP  
CAS No.: 1306-06-5  
OSHA PEL: Although no specific exposure limit has been established for this material, OSHA and ACGIH have established limits for nuisance dusts:  
OSHA PEL/TWA: Total 15 mg/m<sup>3</sup>; Respirable 5 mg/m<sup>3</sup>  
ACGIH TLV: Total 15 mg/m<sup>3</sup>; Respirable 5 mg/m<sup>3</sup>  
OTHER LIMITS: N/A

Sodium Sulfate

Formula: Na<sub>2</sub>SO<sub>4</sub>  
Common Synonyms: Sulfuric Acid, Disodium Salt; Disodium Sulfate  
Chemical Family: Inorganic Sodium Compounds  
CAS No.: 7757-82-6  
OSHA PEL: According to our sources, exposure threshold levels have not been established (N/E).  
ACGIH TLV: N/E  
OTHER LIMITS: N/A

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**SECTION 2 - PHYSICAL/CHEMICAL CHARACTERISTICS**

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Boiling Point: N/A  
Specific Gravity (H<sub>2</sub>O=1): N/A (Tricalcium Phosphate); 2.68 (Na<sub>2</sub>SO<sub>4</sub>)  
Vapor Pressure (mm Hg and Temperature): N/A  
Melting Point: 1400° C (Ca<sub>5</sub>OH(PO<sub>4</sub>)<sub>3</sub>); 884° C (1623° F) (Na<sub>2</sub>SO<sub>4</sub>)

Vapor Density (Air-1): N/A  
Evaporation Rate (-1): N/A  
Solubility in Water: Basically insoluble but contains small amounts of soluble sodium phosphate and carbonate ( $\text{Ca}_5\text{OH}(\text{PO}_4)_3$ ); Appreciable (More than 10%) ( $\text{Na}_2\text{SO}_4$ )  
Water Reactive: No  
Appearance and Odor: Cream colored powder ( $\text{Ca}_5\text{OH}(\text{PO}_4)_3$ ); White crystals or powder ( $\text{Na}_2\text{SO}_4$ ).  
Odorless.

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### SECTION 3 - FIRE AND EXPLOSION HAZARD DATA

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Flash Point and Method Used: N/A  
Auto-Ignition Temperature: N/A  
Flammability Limits in Air (% by volume): N/A  
LEL: N/A UEL: N/A  
Extinguisher Media: Use extinguishing media appropriate for surrounding fire.  
Special Fire Fighting Procedures: Firefighters should wear proper protective equipment and self-contained breathing apparatus with full facepiece operated in positive pressure mode.  
Unusual Fire and Explosion Hazards: Toxic gases produced: sulfur dioxide ( $\text{Na}_2\text{SO}_4$ ).

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### SECTION 4 - REACTIVITY HAZARD DATA

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STABILITY:  Stable  Unstable  
Conditions to Avoid: Moisture. Stable under ordinary conditions of use and storage.  
Incompatibility (Materials to Avoid): Aluminum, magnesium, mineral acids, strong acids, strong bases ( $\text{Na}_2\text{SO}_4$ ).  
Hazardous Decomposition Products: Oxides of sulfur ( $\text{Na}_2\text{SO}_4$ ).  
HAZARDOUS POLYMERIZATION:  May Occur  Will Not Occur

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### SECTION 5 - HEALTH HAZARD DATA

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PRIMARY ROUTES OF ENTRY:  
 Inhalation  Ingestion  Skin Contact  Eye Contact  Not Hazardous  
CARCINOGEN LISTED IN:  
 NTP  OSHA  IARC Monograph  Not Listed  
TOXICITY: Tricalcium Phosphate: Oral LD50 (rats): >10,000 mg/kg, Dermal LD50 (rabbit): >7,940 mg/kg;  
eye irritation (rabbit): 0.8 on a scale of 110.0; skin irritation (rabbit): 0.0 on a scale of 8.0.  
Sodium Sulfate: LD50 (oral-mouse) 5989 mg/kg. (Monsanto, St. Louis, MO 1993)  
HEALTH HAZARDS - Acute:  
Inhalation: May cause irritation to upper respiratory tract.  
Ingestion: May cause gastrointestinal irritation.  
Skin Contact: May cause irritation.  
Eye Contact: May cause irritation.  
HEALTH HAZARDS - Chronic: None identified.  
Signs and Symptoms of Exposure: No information found.  
Medical Conditions Generally Aggravated by Exposure: None identified.

EMERGENCY FIRST AID PROCEDURES - Seek medical assistance for further treatment, observation, and support if necessary.

Inhalation: If a person breathes in large amounts, move the exposed person to fresh air.

Ingestion: If swallowed, and the person is conscious, immediately give large amounts of water. get medical attention.

Skin Contact: Remove any contaminated clothing. Wipe off excess from skin. Immediately wash skin with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.

Eye Contact: Immediately flush with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally.

### SARA/TITLE III HAZARD CATEGORIES AND LISTS

Acute: Yes Chronic: Yes Flammability: No Pressure: No Reactivity: No

Extremely Hazardous Substance: No

CERCLA Hazardous Substance: No

SARA 313 Toxic Chemicals: Yes (Na<sub>2</sub>SO<sub>4</sub>) Contains Sodium Sulfate. Generic class removed from CFR 7-9-91.

TSCA Inventory: Yes

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### SECTION 6 - CONTROL AND PROTECTIVE MEASURES

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Respiratory Protection (Specify Type): Use NIOSH approved equipment suitable for nuisance dust when air-borne exposure is excessive. Consult respirator manufacturer to determine appropriate type equipment for given application.

Protective Gloves: Wear rubber gloves.

Eye Protection: Wear chemical safety goggles.

VENTILATION TO BE USED: Use adequate general or local exhaust ventilation to keep dust levels as low as possible.

Local Exhaust       Mechanical (General)       Special  
 Other(Specify)

Other Protective Clothing and Equipment: Wear clean body-covering clothing.

Hygienic Work Practices: Avoid contact with eyes, skin, and clothing. Avoid breathing dust. Keep container closed when not in use. Use with adequate ventilation. Wash thoroughly after handling.

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### SECTION 7 - PRECAUTIONS FOR SAFE HANDLING & LEAK/USE PROCEDURES

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Steps to be taken if material is spilled or released: Wear suitable protective clothing. Carefully sweep up and remove.

Waste Disposal Methods: Dispose in accordance with all applicable local, state, federal environmental regulations.

Precautions to be taken in handling and storage: Keep in a tightly closed container. Suitable for any general chemical storage area. Isolate from incompatible materials. Protect against physical damage. Store in accordance with all applicable local, state, and federal environmental regulations.

Other precautions and/or special hazards: Sodium Sulfate is hygroscopic.

NFPA Rating: Health: **1** Flammability: **0** Reactivity: **0**

HMIS Rating: No information available.

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## **SECTION 8 - TRANSPORTATION DATA AND ADDITIONAL INFORMATION**

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### Domestic (D.O.T.)

Proper Shipping Name: Chemical, n.o.s. (Non-regulated)

### International (T.M.O.)

Proper Shipping Name: Chemical, n.o.s. (Non-regulated)

### AIR (I.C.A.O.)

Proper Shipping Name: Chemical, n.o.s. (Non-regulated)

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