SAFETY DATA SHEET
FOR
THORN SMITH LABORATORIES

SECTION 1 - IDENTIFICATION

Trade Name:	**Arsenic**
Catalog Number:	80-1055 (Vials) / 80-1056 (100g)
Product Description:	Analyzed Quantitative Unknowns
Manufacturer:	Auric Enterprises, Inc. d/b/a Thorn Smith Laboratories
Address:	7755 Narrow Gauge Road Beulah, MI 49617
Phone Number:	231-882-4672
SDS Number:	TSL-015

SECTION 2 – HAZARDS IDENTIFICATION

Hazard Labels:

Appearance: white solid.

Danger! May be fatal if swallowed. Poison! Contains inorganic arsenic. Harmful if inhaled. Cancer hazard. Causes eye and skin irritation. May cause severe respiratory and digestive tract irritation with possible burns. May cause blood abnormalities. May cause lung damage. May cause central nervous system effects. May cause cardiac disturbances. May cause liver and kidney damage. This substance has caused adverse reproductive and fetal effects in animals.

Target Organs: Kidneys, central nervous system, liver, lungs, cardiovascular system, red blood cells, skin.

Potential Health Effects

Eye: Contact produces irritation, tearing, and burning pain. May cause conjunctivitis.
Skin: Causes irritation with burning pain, itching, and redness. May cause dermatitis. Exposure to arsenic compounds may produce hyperpigmentation of the skin and hyperkeratoses of plantar and palmar surfaces as well as both primary irritation and sensitization types.
Ingestion: May be fatal if swallowed. Causes severe digestive tract burns with abdominal pain, vomiting, and possible death. May cause hemorrhaging of the digestive tract. Ingestion of arsenical compounds may cause burning of the lips, throat constriction, swallowing difficulties, severe abdominal pain, severe nausea, projectile vomiting, and profuse diarrhea. Ingestion of arsenic compounds can produce convulsions, coma, and possibly death within 24 hours.
Inhalation: May cause severe irritation of the respiratory tract with sore throat, coughing, shortness of breath and delayed lung edema. Inhalation of arsenic compounds may lead to irritation of the respiratory tract and to possible nasal perforation. Long-term exposure to arsenic compounds may produce impairment of peripheral circulation.
Chronic: May cause liver and kidney damage. Chronic inhalation may cause nasal septum ulceration and perforation. May cause anemia and other blood cell abnormalities. Chronic skin effects include: cracking,

thickening, pigmentation, and drying of the skin. Arsenic trioxide can cause cancer in humans. Other long term effects include: anemia, liver and kidney damage. Chronic exposure to arsenical dust may cause shortness of breath, nausea, chest pains, and garlic odor.

SECTION 3 – COMPOSITION AND INFORMATION ON INGREDIENTS

Arsenic Trioxide:

Formula:	As_2O_3
CAS No.:	1327.53-3
% by Weight:	< 16

Sodium Sulfate:

Formula:	Na_2SO_4
CAS No.:	7757-82-6
% by Weight:	> 84

SECTION 4 – FIRST AID MEASURES

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

Inhalation:
Remove from exposure area to fresh air immediately. If breathing has stopped, give artificial respiration. Maintain airway and blood pressure and administer oxygen if available. Keep affected person warm and at rest. Treat symptomatically and supportively. Administration of oxygen should be performed by qualified medical personnel. Get medical attention immediately.
Skin Contact:
Remove contaminated clothing and shoes immediately, wash affected area with soap or mild detergent and large amounts of water until no evidence of chemical remains (approximately 15 to 50 minutes). Get medical attention immediately.
Eye Contact:
Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower eyelids, until no evidence of chemical remains (approximately 15 to 20 minutes), get medical attention immediately.
Ingestion:
Remove by gastric lavage or emesis. Follow with a saline cathartic. Maintain blood pressure, airway, and give oxygen if respiration is depressed. Do not perform gastric lavage or emesis if victim is unconscious. Get medical attention immediately. (Dreisbach, Handbook of Poisoning, 12th Edition). Administration of oxygen should be performed by qualified medical personnel.

ANTIDOTE: The following antidote has been recommended, however, the decision as to whether the severity of poisoning requires administration of any antidote and actual dose required should be made by qualified medical personnel.

Arsenic Poisoning: Give Dimercaprol, 3 MG/KG (OR 0.3 ML/KG) every 4 hours for 2 days and then 2 MG/KG every 2 hours for a total of 10 days. Dimercaprol is available as a 10% solution in oil for intramuscular administration. Next, give

penicillamine, up to 100 MG/KG/DAY (maximum 1 G/Day) divided into 4 doses for no longer than 1 week. If a longer administration period is warranted, dosage should not exceed 40 MG/KG/DAY. Give the drug orally half an hour before meals. Discontinue antidote when urine arsenic level falls below 50 UG/24 hr. (Dreisbach, Handbook of Poisoning, 12th Edition). Antidote should be administered by qualified medical personnel.

SECTION 5 – FIRE FIGHTING MEASURES

Flammability: Non-Flammable
Flash Points: Not Applicable
Auto-Ignition: Not Applicable
Flammable Limits: Not Applicable
Extinguishing Media: Dry chemical, carbon dioxide, water spray or regular foam. For larger fires, use water spray, fog or regular foam.
Fire Fighting Procedure: Firefighters should wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Remove container from fire area if you can do it without risk. Use agents suitable for type of fire, use flooding amounts of water as a fog. Avoid breathing poisonous vapors, keep upwind.
Fire/Explosion Hazards: Toxic gases produced: sulfur dioxide (Na_2SO_4).

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures:

Soil Spill:
Do not handle packages without full protective equipment. Dig a pit, pond, lagoon or holding area to contain liquid or solid material. Cover solids with a plastic sheet to prevent dissolving in rain or fire fighting water.
Water spill:
Use dredges or lifts to extract immobilized masses of pollution and precipitates. Add suitable agent to neutralize material to pH-7. Add Calcium Hypo-chlorite to spill. Add Ferric Chloride to spill. Neutralize with agricultural lime, slaked lime, crushed limestone, or Sodium Bicarbonate.
Occupational Spill:
Do not touch spilled material. Stop leak if you can do it without risk. For small spills, take up with sand or other absorbent material and place into containers for later disposal. For small dry spills, with a clean shovel place material into clean, dry container and cover. Move containers from spill area. For larger spills, dike far ahead of spill for later disposal. Keep unnecessary people away. Isolate hazard area and deny entry.
Reportable Quantity: 5000 lbs.
Waste Disposal Methods:
Observe all federal, state, and local regulations when storing or disposing of this substance. For assistance, contact the district director of the Environmental Protection Agency.

SECTION 7 – HANDLING AND STORAGE

Storage Temperatures: Store in cool place.
Shelf Life: Unlimited in tightly closed container.
Special Sensitivity: Keep away from Strong Bases, Strong Acids, Sources of Ignition and Direct Sunlight.
Precautions to be taken in handling and storage: Do not breathe dust, fume, gas, mist, vapors, or spray. Wash contaminated clothing before reuse. Obtain special instructions before use. Wash thoroughly after

handling. Do not eat, drink, or smoke when using this product. Provide good ventilation in process area to prevent formation of vapor. Store in accordance with all local, state, and federal environmental regulations.

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection (Specify Type): The following respirators are the minimum legal requirements as set forth by the Occupational Safety and Health Administration found in 29 CFR 1910, Subpart Z for Arsenic Trioxide.

Concentration of inorganic arsenic or condition of use: Unknown or greater or less than 20,000 UG/M^3 (20 MG/ME) or firefighting. Required Respirator: Any full facepiece, self-contained breathing apparatus, operated in positive pressure mode.

Concentration of inorganic arsenic or condition of use: Not greater than 20,000 UG/M^3 (20 MG/M^3). Required Respirator: Supplied-air respirator with full facepiece, hood or helmet or suit and operated in positive pressure mode.

Concentration of inorganic arsenic or condition of use: Not greater than 10,000 UG/M^3 (10 MG/M^3). Required Respirator: Powered-air purifying respirators in all inlet face coverings with high efficiency filters; or half-mask supplied-air respirator operated in positive pressure mode.

Concentration of inorganic arsenic or condition of use: Not greater than 500 UG/M^3. Required Respirator: Full facepiece air-purifying respirator equipped with high efficiency filters; or any full facepiece supplied-air respirator; or any full facepiece self-contained breathing apparatus.

Concentration of inorganic arsenic or condition of use: Not greater that 100 UG/M^3. Required Respirator: Half-mask air-purifying respirator equipped with high efficiency filters; or any half-mask supplied-air respirator.

Protective Gloves: Employee must wear appropriate protective gloves to prevent contact with this substance.

Eye Protection: Employee must wear splash-proof or dust-resistant safety goggles to prevent eye contact with this substance.

Ventilation to be used: Provide general dilution ventilation to keep fume and dust levels as low as possible. Ventilation must meet the requirements in 29 CFR 1910.1018 (G).

_____ Local Exhaust __X__ Mechanical Exhaust (General)
_____ Special _____ Other (Specify)

Other protective clothing and equipment: Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.

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.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Physical Form: Powder
Color: White
Odor: Odorless
Molecular Weight: N/A
Boiling Point: 465ºC (AS_2O_3); N/A (Na_2SO_4)
Melting Point: 275ºC (AS_2O_3); 884ºC (1623ºF) (Na_2SO_4)
Solubility in Water: Slight (AS_2O_3); Appreciable (More than 10%) (Na_2SO_4)

Water Reactive: No
Vapor Density (Air-1): N/A
Evaporation Rate (-1): N/A

SECTION 10 – STABILITY AND REACTIVITY

STABILITY: __X__ Stable _____ Unstable
Condition to Avoid: Moisture. Stable under ordinary conditions of use and storage.
Incompatibility (Materials to Avoid):
Arsenious Acid:

Acids: Vigorous reaction
Aluminum: Corrosive in the presence of moisture
Chlorine Trifluoride: Violent reaction with possible ignition
Copper: Corrosive in the presence of moisture
Fluorine: Violent reaction
Hydrogen Fluoride: Reacts with incandescence
Iron Solutions: Corrodes
Mercury: Vigorous reaction
Metals: Corrosive in the presence of moisture
Oxygen Difluoride: Vigorous reaction
Rubidium Carbide: Ignites
Sodium Chloriate: Forms spontaneously flammable mixture
Sodium Nitrate + Iron (II) Sulfate: Spontaneous ignition
Zinc: Explodes when heated

Sodium Sulfate:

Aluminum, magnesium, mineral acids, strong acids, strong bases

Hazardous Decomposition Products: Thermal decomposition may release toxic oxides of arsenic and sodium and highly toxic arsine gas (AS_2O_3); Oxides of sulfur (Na_2SO_4).

HAZARDOUS POLYMERIZATION: _____ May Occur __X__ Will Not Occur

SECTION 11 – TOXICOLOGICAL INFORMATION

PRIMARY ROUTES OF ENTRY:
__X__ Inhalation __X__ Ingestion __X__ Skin Contact __X__ Eye Contact
_____ Not Hazardous

CARCINOGEN LISTED IN:
_____ NTP _____ OSHA _____ IARC Monograph __X__ Not Listed

TOXICITY:

Arsenic Trioxide, Solid:
29 MG/KG ORAL-MAN LDLO; 1429 UG/KG ORAL-HUMAN LDLO; 286 MG/KG ORAL-MAN LDLO; 2857 MG/KG ORAL-MAN LDLO; 14, 600 UG/KG ORAL-RAT LD50; 31,500 UG/KG ORAL-MOUSE LD50; 20,190 UG/KG ORAL-RABBIT LD50; 10 MG/KG ORAL-DOG LDLO; 30 MG/KG ORAL-CATTLE LDLO; 8 MG/KG SUBCUTANEOUS-RAT LDLO; 9800 UG/KG SUBCUTANEOUS-MOUSE LD50; 10,700 UG/KG INTRAVENOUS-MOUSE LD50; 10,560 UG/KG INTRAVENOUS-RABBIT LDLO; 871 MG/KG INTRAPERITONEAL-RAT LD50; 2 MG/KG INTRADERMAL-DOG LDLO; 2941 UG/KG UNREPORTED-MAN LDLO; 8 MG/KG UNREPORTED-RAT LDLO; MUTAGENIC DATA (RTECS); REPRODUCTIVE EFFECTS DATA (RTECS); TUMORIGENIC DATA (RTECS)

Sodium Sulfate: LD50 (Oral-Mouse) 5989 mg/kg.

SECTION 12 – ECOLOGICAL INFORMATION

Not Known

SECTION 13 – DISPOSAL CONSIDERATIONS

Dispose of in accordance with all applicable local, state and federal environmental regulations.

SECTION 14 – TRANSPORTATION INFORMATION

Domestic (D.O.T.)

Proper Shipping Name: Arsenic Trioxide
Hazard Class or Division: 6.1
Labeling Requirement: Poison
Packing Group: II
I.D.#: UN1561
Applicable Exemption #: DOT-SP 8249

SECTION 15 – REGULATORY INFORMATION

US FEDERAL

TSCA
CAS# 1327-53-3 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
CAS# 1327-53-3: 1 lb final RQ; 0.454 kg final RQ
SARA Section 302 Extremely Hazardous Substances
CAS# 1327-53-3: 100 lb lower threshold TPQ; 10000 lb upper threshold T PQ
SARA Codes
CAS # 1327-53-3: immediate, delayed.
Section 313
This material contains Arsenic trioxide (listed as Arsenic, inorganic compounds), 100.0%, (CAS# 1327-53-3) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.
Clean Air Act:
CAS# 1327-53-3 (listed as Arsenic, inorganic compounds) is listed as a hazardous air pollutant (HAP).
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
CAS# 1327-53-3 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA. CAS# 1327-53-3 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 1327-53-3 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, (listed as Arsenic, inorganic compounds), Massachusetts.

California Prop 65

The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:

WARNING: This product contains Arsenic trioxide, listed as `Arsenic, inorganic compounds', a chemical known to the state of California to cause cancer. WARNING: This product contains Arsenic trioxide, listed as `Arsenic (inorganic oxides)', a chemical known to the state of California to cause developmental reproductive toxicity.

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T+ N

Risk Phrases:

R 28 Very toxic if swallowed.
R 34 Causes burns.
R 45 May cause cancer.
R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 53 Avoid exposure - obtain special instructions before use.
S 60 This material and its container must be disposed of as hazardou s waste.
S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)

CAS# 1327-53-3: 3

Canada - DSL/NDSL

CAS# 1327-53-3 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D1A, D2A.

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 those regulations.

Canadian Ingredient Disclosure List

CAS# 1327-53-3 is listed on the Canadian Ingredient Disclosure List.

Extremely Hazardous Substance: Yes (Arsenic Trioxide); No (Sodium Sulfate)
CERCLA Hazardous Substance: Yes (Arsenic Trioxide); No (Sodium Sulfate)
SARA 313 Toxic Chemicals: Yes
TSCA Inventory: Yes

SECTION 16 – OTHER INFORMATION

Date Prepared:	April 16, 1990
Date of Last Revision:	November 11, 2020

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