

Material Safety Data Sheet
May be used to comply with
OSHA's Hazard Communication Standard,
29 CFR 1910.1200. Standard must be consulted
for specific requirements.

U.S. Department of Labor
Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY (As Used on Label and List)

Bonide Soil Acidifier

ID. No. 058

Date: March 10, 2008

Section I

Bonide Products, Inc.
6301 Sutliff Road
Oriskany, NY 13424

(800) 424-9300
(315) 736-8231

Section II - Hazardous Ingredients/Identity

Hazardous Components (Specific Chemical Identity: Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits	% (Optional)
Sulfur CAS # 7704-34-9	N.E.	N.E.	N.A.	90
Crystalline silica* CAS # 14464-46-1	<0.7	0.1	mg/m ³	

*present in trace quantities in clay

HAZARDOUS RATING SYSTEM:

	<u>NFPA 704</u>	<u>HMIS</u>	<u>KEY</u>
HEALTH	1	1	4 = SEVERE
FLAMMABILITY	1	1	3 = SERIOUS
REACTIVITY	0	1	2 = MODERATE
			1 = SLIGHT
			0 = MINIMAL

Powdered sulfur may be considered a nuisance dust by the ACGIH. As such workplace exposures should not exceed 10 mg/m³.

Section III - Physical/Chemical Data

APPEARANCE: Yellowish solid	ODOR: Odorless
MELTING POINT: 246°F	BOILING POINT: 831°F at 1 ATM
VAPOR PRESSURE: 0.0001 mm Hg at 68°F	SOLUBILITY IN WATER: Not Applicable
VAPOR DENSITY (Air = 1): Insoluble.	SPECIFIC GRAVITY (H ₂ O = 1)
PERCENT VOLATILE BY VOLUME: Nearly Zero	VISCOSITY: Not Applicable
EVAPORATION RATE (Ethyl Ether = 1): Negligible	SYNONYMS: None
CHEMICAL NAME: Sulfur blended with Bentonite clay	CHEMICAL FAMILY: Natural products
CHEMICAL FORMULA: S	CAS Reg. No.: 7704-34-9 (sulfur), 1302-78-9 (clay)

PRODUCT AND/OR COMPONENTS ENTERED ON EPA'S TSCA INVENTORY: Yes

This product has been introduced into U.S. commerce, and is listed in the Toxic Substances Control Act (TSCA) Inventory of Chemicals in Commerce; hence, it is subject to all applicable provisions and restrictions under TSCA 40 CFR, Section 721 and 723.250.

Section IV - Fire and Explosion Data

FLASH POINT (Method Used): 370°F (COC) AUTOIGNITION TEMPERATURE: 491°F
FLAMMABLE TEMPERATURE (% by Volume in Air): LEL – not applicable UEL – not applicable
FIRE EXTINGUISHING MEDIA: Dry Chemical, Foam, Carbon Dioxide (CO₂), and Water (Fog or Spray Pattern)
SPECIAL FIRE FIGHTING PROCEDURES: Cool down with water and smother with steam, foam, or dry chemical. Generally low hazard. Molten liquid can burn if heated to temperatures in excess of flash point. In case of fire, evacuate all unnecessary personnel from area. Use NIOSH/MSHA approved self-contained breathing apparatus and other protective equipment and/or garments described in Section VII if conditions warrant. Isolate additional material from fire if possible. Water fog or spray may be used to extinguish fire because the material can be cooled below its flash point. Liquid sulfur in open containers may be extinguished with a fine spray of water. Use of high pressure hose streams must be avoided because of the risk of splattering or causing a steam explosion. Keep quantity of water used to a minimum. Fires in storage tanks can be extinguished by shutting off vents to exclude air. Allow tank contents to cool to below 310°F before opening again.
FIRE AND EXPLOSION HAZARDS: Do not mix water with hot sulfur. Molten sulfur can release hydrogen sulfide, a highly toxic gas.

Section V - Reactivity Data

STABILITY: Stable. CONDITIONS TO AVOID: Heat greater than 212°F, Sparks, Flame, and build up to static Electricity. INCOMPATIBILITIES (Materials to Avoid): Acids, Alkalies, Halogens, Oxygen and Strong Oxidizing agents. Forms explosive mixtures with oxidizing agents. DECOMPOSITION: Thermal decomposition may release toxic fumes of zinc. Possibly oxides of sulfur. HAZARDOUS POLYMERIZATION: Will not occur. HAZARDOUS DECOMPOSITION PRODUCTS: Sulfur Oxides, Hydrogen Sulfide.

Section VI - Health Hazard Data

RECOMMENDED EXPOSURE LIMITS: See Section II

ACUTE EFFECTS OF OVEREXPOSURE:

EYE: Exposure to dust can cause eye irritation, characterized by burning, Incrimination, blurred vision, keratitis, and losses of corneal epithelium.

SKIN: Exposure to dust can cause skin irritation. Symptoms include reddening, itching, and inflammation.

INHALATION: Sulfur dust is irritation to mucous membranes of respiratory tract. May cause coughing, sore throat, and shortness of breath.

INGESTION: Large doses can cause gastrointestinal irritation, nausea, vomiting, and diarrhea. Ingestion of greater than 15 grams may cause production of hydrogen sulfide from bacterial action in colon. Hydrogen sulfide thus produced can cause effects on central nervous system, including convulsions, changes in blood pressure and respiration, respiratory arrest, and possibly death.

SUBCHRONIC AND CHRONIC EFFECTS OF OVEREXPOSURE: Skin sensitization has been observed in some people after repeated exposures to sulfur dust. Chronic inhalation may cause bronchopulmonary disease, which may be complicated by emphysema and bronchiectasis. No evidence for carcinogenicity of sulfur according to NTP, LARC, NIOSH, OSHA, or ACGIH. LARC has determined that there is "limited" evidence that crystalline silica is a carcinogen.

OTHER HEALTH EFFECTS: None of note.

HEALTH HAZARD CATEGORIES:

SUSPECT CARCINOGEN *: Animal IRRITANT: Human TARGET ORGAN TOXIN: Human

*Limited evidence for crystalline silica

SPECIFY: Eye, respiratory tract irritation

FIRST AID AND EMERGENCY PROCEDURES:

EYES: Immediately flush eyes with large amounts of water for at least 15 minutes. Get medical attention.

SKIN: Wash affected area with soap and water.

INHALATION: Remove the victim to fresh air. Administer artificial respiration if breathing has stopped. Keep victim at rest. Call for prompt medical attention.

INGESTION: Never give anything by mouth to anyone who is unconscious or convulsion. Give victim about 16 ounces of water. Induce vomiting if victim is responsive. This is most affective within 30 minutes of ingestion. Have emergency eyewash station available in work area.

Section VII – Personal Protection Information

VENTILATION: Use adequate ventilation to control exposure below recommended exposure levels. Avoid inhalation of dust.

RESPIRATORY PROTECTION: Not generally required. When entering areas containing unknown concentrations, use NIOSH/MSHA approved self-contained breathing apparatus (SCBA).

EYE PROTECTION: Dust-proof goggles or safety glasses with side shields. Contact lenses may absorb irritants. Particles may adhere to lenses and cause corneal damage. Do not wear contact lenses in work areas.

SKIN PROTECTION: Chemical-resistant gloves and clothing are recommended to avoid prolonged contact. Avoid unnecessary skin contact.

NOTE: Personal protection information shown in Section C is based upon general information as to normal uses and conditions. Where special or unusual uses or conditions exist, it is suggested that the expert assistance of an industrial hygienist or other qualified professional be sought.

Section VIII – Handling and Storage Precautions

Store in a cool, dry, well-ventilated area, away from incompatible chemicals. Keep away from fire, sparks, and flame. Material is corrosive to ferrous and mild steel materials. All handling and storage equipment should be constructed of stainless steel, aluminum, or poly-type materials. Keep containers closed and electrostatically grounded. Powdered sulfur is subject to dust cloud explosions. Engineering of storage facilities should incorporate maximum explosion-proof design.

