Bonide Sulfur Plant Fungicide

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date: 01/08/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name : Bonide Sulfur Plant Fungicide

Product code : 462

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Fungicide

1.3. Details of the supplier of the safety data sheet

Bonide Products, LLC
6301 Sutliff Road
Oriskany, NY 13424

Telephone Number: (315) 736-8231
Comment: Bonide hours of operation are 8:00 a.m. to 4:30 p.m EST.

Website: www.bonide.com

Email address: sales@bonide.com

1.4. Emergency telephone numbers (24 hour)

Medical : SafetyCall - (833) 972-1101

Spills : CHEMTREC - 1 (800) 424-9300 and/or 1 (703) 527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US) in accordance with 29 CFR 1910 (OSHA HCS)

Skin irritation (category 2) H315

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

Signal word (GHS-US) : Warning

Hazard statements (GHS-US) : H315 - Causes skin irritation

Precautionary statements (GHS-US) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.
P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof equipement.
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 - Wash hands thoroughly after handling.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
P332+P317 - If skin irritation occurs: Get medical help.
P362 - Take off contaminated clothing.
P370+P378 - In case of a fire, use water fog, spray, or regular foam to extinguish. Do not use a direct water stream.
P402 - Store in a dry place.
P403 - Store in a well-ventilated place.
P404 - Store in a closed container.

2.3. Other hazards

Combustible Dust - If suspended in air, it will ignite by friction, static electricity, heat, sparks, or flames. Sulfur dust clouds may explode.

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical Formula : S8
Molecular Weight : 32.07 g/mol
CAS-No. : 7704-34-9
EC-No. : 231-722-6
Index-No. : 016-094-00-1

3.2 Mixture

Name	Product identifier (CAS Number)	%
Sulfur	7704-34-9	>90%

*Ingredients not listed or listed with a weight % range are considered a trade secret and are withheld under 29 CFR 1910.1200(i).

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Assure fresh air breathing. Watch for signs of an allergic reaction. Use a bronchodilator inhaler if directed by asthma patient. Keep victim warm and quiet. If not breathing, give artificial respiration. If heart has stopped beating, start cardiopulmonary resuscitation (CPR). SEEK MEDICAL ATTENTION.

First-aid measures after skin contact : Wash with plenty of soap and water. Wash exposed clothing separately before reuse.

First-aid measures after eye contact : Immediately flush eyes with plenty of water for 15 minutes, while holding upper and lower lid apart to insure rinsing of entire eye surface and lids. Do not use boric acid to rinse with. FOR SEVERE IRRITATION, SEEK MEDICAL ATTENTION, preferably an ophthalmologist.

First-aid measures after ingestion : Give one tablespoon of Syrup of Ipecac to induce vomiting. If vomiting does occur, give fluids again. If vomiting has not occured in twenty minutes, the same dose of Syrup of Ipecac may be repeated one additional time. Alternatively, vomiting may be induced by touching the back of the throat with a finger. Immediately consult a doctor/medical service.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after skin contact : Causes skin irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Individuals with known allergies to sulfide drugs may also have allergic reactions to elemental sulfur.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Sand.

Unsuitable extinguishing media : Do not usea direct water stream, as it could create sulfur dust clouds and cause an explosion or could move burning sulfur to adjacent areas.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Fire will rekindle until mass is cooled below 310°F (154°C). Cool surrounding areas with water fog to prevent re-igniting. Sulfur dust is HIGHLY FLAMMABLE. If suspended in air, it will ignite by friction, static electricity, heat, sparks, or flames. Sulfur dust clouds may explode.

5.3. Advice for firefighters

Firemen exposed to contaminated smoke should be immediately relieved and checked for symptoms of exposure of toxic gases. This should not be mistaken for heat exhaustion or smoke inhalation. SEEK MEDICAL ATTENTION IMMEDIATELY

Exposure Hazards : Prevent human exposure to smoke, fumes, or products of combustion (sulfur oxide gases). Evacuate nonessential personnel from the fire area. If large fire, evacuate people downwind from fire. Consider evacuation for ½ mile in all directions.

Protection during firefighting : Wear full-faced, self-contained breathing apparatus and full protective clothing..

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precausions : Minor spills such as torn or ruptured containers should be repaired or patched with tape if possible. Place spilled material in a disposable container. Avoid getting dust in eyes.

Protective equipment : Maintain adequate ventilation. Wear a dust mask when dust is present or a respirator if smoke is present. Wear safety glasses.

Emergency procedures : As an immediate precautionary measure isolate spills or leak areas. Eliminate all sources of ignition, such as flares, sparks, or flames, in the immediate area. No smoking. Ventilate closed spaces before entering.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Gently sweep or shovel up spilled material using a natural fiber broom and/or aluminum shovel to prevent sparking, to avoid creating a dust cloud. Place sweepings in an appropriate chemical waste container for reclaiming or disposal in an approved facility. Wash spill site after clean-up is complete.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

All handling and conveying equipment should be properly grounded and bonded. Be careful not to create dust. Avoid any conditions that might tend to create a dust explosion. Maintain good housekeeping practices to minimize dust build-up and dispersion. Eliminate sources of ignition. Keep away from heat, sparks, and flames. Use nonferrous tools, when available, to reduce sparking. Gently sweep or shovel up spilled materials using a natural fiber broom and/or aluminum shovel to prevent sparking. Maintain adequate ventilation in all areas.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	:	Containers should be stored in a cool, dry, well-ventilated area. Keep container tightly closed. Store away from flammable materials, sources of heat, flames, and sparks. Separate from chlorates, nitrates, and other oxidizing agents. Exercise due caution to prevent damage to or leakage from container.
Incompatible materials	:	Keep away from flammable materials, sources of heat, flame, sparks, chlorates, nitrates and other oxidizing agents.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Maintain adequate ventilation in all areas. No flares or flames in area. Be careful not to create dust. Eliminate sources of ignition.

8.2. Exposure controls

Respiratory	:	Wear dust masks and use NIOSH/MSHA approved dust respirator if airborne concentrations exceed exposure limits.
Eyes/Face	:	Wear suitable, protective safety glasses to prevent eye irritation from dust.
Hands	:	Wash hands thoroughly after handling and before eating or smoking.
Skin/Body	:	Wear suitable, protective clothing to prevent skin irritation from dust. Wash skin thoroughly after handling and before eating or smoking. Wash contaminated clothing separately before reuse.
Environmental Exposure Controls	:	Follow best practice for site management and disposal of waste. Avoid release to the environment.
General Industrial Hygiene Considerations	:	Protective equipment should be used in any situation that may result in hazardous exposure. Maintain good housekeeping practices to minimize dust build-up and dispersion. Eliminate sources of ignition. Use nonferrous tools to reduce sparking. Sweep or shovel up spilled material using a natural fiber broom and/or aluminum shovel to prevent sparking. Maintain adequate ventilation in all areas.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Appearance	:	Yellow powder
Formula	:	S_8 (Rhombic or monoclinic)
Color	:	Pale yellow.
Odor	:	Faint odor of rotten eggs.
pH	:	No data available
Melting point/ Freezing point	:	118 - 120 °C (244 - 248°F)
Purity	:	99.5% Min.
Auto-Ignition temperature	:	240°C (464°F)
Boiling point	:	444° C (832 ° F)
Flash point	:	207°C (405°F) Closed Cup
Decomposition temperature	:	Does not decompose
Flammability (solid, gas)	:	May form combustible dust concentrations in air
Vapor pressure	:	8 mmHg at 246°C (475°F) 1 mmHg at 183.8°C (362.8°F)
Vapor density	:	No data available
Relative density	:	No data available
Bulk Density	:	Powder: 33-80 lbs./ft3
Solubility	:	Insoluble
Specific Gravity	:	2.07 @ 70° F
Explosive properties	:	No data available
Flammable/Explosion limits	:	Upper: 6.38% (v) Lower: 0.17% (v)

SECTION 10: Stability and reactivity

10.1. Reactivity
Stable

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
Not established.

10.4. Conditions to avoid
Avoid moisture. Keep away from heat sources, sparks, and open flames. Minimize dust generation and accumulation.

10.5. Incompatible materials
Oxidizing agents, copper, copper alloys, steel, chlorates, nitrates.

10.6. Hazardous decomposition products
Oxides of sulfur gases produced by burning sulfur.

SECTION 11: Toxicological information

11.1 Likely Routes of Exposure Inhalation, ingestion, skin contact, and eye contact

11.2 Information on Toxicological Effects

11.2.1 Signs and Symptoms of Nose or throat irritation, coughing, chest discomfort, asthma, difficulty breathing,

11.2.2 Overexposure nausea, vomiting, stinging eye irritation, skin irritation, hives.

11.2.3 Exposure Limits No exposure limits have been established

11.2.4 Acute Symptoms and Effects

Inhalation Prolonged inhalation may cause irritation of respiratory tract. Breathing of dust may aggravate asthma and other pulmonary diseases.

Eye Contact Sulfur dust is an eye irritant.

Skin Contact No adverse effects; however, skin irritation may be aggravated in persons with existing skin lesions.

Ingestion Ingested sulfur is converted to sulfides in the gastrointestinal tract, and ingestion of 10 to 20 grams has caused irritation of the GI tract and renal injury. Swallowing large amounts may cause nausea and vomiting.

11.2.5 Long-Term Effects None known to humans

11.3 Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens. No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

11.4 Toxicity

LD50 Oral: >5050 mg/kg (rats) Dermal: >2020 mg/kg (rats) **LC50** Inhalation @ 90%: >5.49-mg/L air concentration (rats) **Skin** Slightly irritating (rabbits)

Eye Minimal irritation in non-washed eyes (rabbits)

Sensitization	Reproductive Effects	Developmental Effects	Endocrine Disruptor
Not Established	Not Established	Not Established	Not Established

Carcinogenicity	Teratogenicity	Mutagenicity
This product does not contain any ingredient designated by NTP, IARC, or OSHA as a probable human carcinogen.		

SECTION 12: Ecological information

12.1 Toxicity

12.1.1 Toxicity to fish

LC50- Oncorhynchus mykiss (rainbow trout) -> 180 mg/l -96h
LC50- other fish- 866 mg/l -96h

12.1.2 Toxicity to Daphnia and Other Aquatic Invertebrates

EC50- Daphnia magna (Water flea) -> 5,000 mg/l -48h

12.2 Ecotoxicity No data available

12.3 Mobility No data available

12.4 Degradation No data available

12.5 Bioaccumulation No data available

12.6 Results of PBT and vPvB Assessment PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Sulfur is not regulated if transported in non-bulk packaging (less than 400 kg or 880 lbs. per package) or if formed to a specific shape, such as prills, granules, pellets, pastilles, or flakes (49 CFR 172.102, special provision 30).

US and Canadian Shipments

Bulk containers (packaging) of powdered sulfur of more than 400 kg (880 lbs.) per package

	14.1 UN number	14.2 UN proper shipping name	14.3 transport hazard class(es)	14.4 packaging group	14.5 environmental hazards
DOT (Domestic)	NA1350	Sulfur (Sulphur)	9 (Misc. Hazardous Materials)	III	No data available
DOT (International)	UN1350	Sulphur (Sulfur)	4	III	No data available
TDG	UN 1350	Sulfur	4.1	III	No data available

Other than US and Canadian Shipments

All shipments of powdered sulfur

IMO/IMDG	UN1350	Sulphur (Sulfur)	4.1 (flammable solid)	III	No data available
IATA/ICAO	UN1350	Sulfur	4.1	III	No data available

This product is not a Marine Pollutant as defined in *40 CFR Part 172.*

SECTION 15: Regulatory information

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

CAUTION: Harmful if swallowed, inhaled, or absorbed through skin. May cause irritation of eyes, nose, throat and skin. Avoid contact with eyes or skin. Avoid breathing dust vapor or spray mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

15.1 TSCA This product is listed on the TSCA Inventory at CAS Registry Number 7704-34-9.

15.2 CERCLA Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

• If this product is accidentally spilled, it is not subject to any special reporting. We recommend that you contact state and local authorities to determine if there are other local reporting requirements.

15.3 SARA TITLE III Superfund Amendments and Reauthorization Act, Title III

• Sections 311/312: None. Section 313: None. Section 302: None.

15.4 RCRA Resource Conservation and Recovery Act

• Not subject to reporting because sulfur is not identified as a hazardous waste.

SECTION 16: Other information

Other information : None.

SDS US (GHS HazCom 2012) - Pesticides

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.