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## Material Safety Data Sheet

### Sulfur Sublimed MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** Sulfur Sublimed

**Catalog Codes:** SLS4126

**CAS#:** 7704-34-9

**RTECS:** WS4250000

**TSCA:** TSCA 8(b) inventory: Sulfur Flour

**CI#:** Not available.

**Synonym:**

**Chemical Name:** Sulfur

**Chemical Formula:** S

**Contact Information:**

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

#### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
Sulfur Flour	7704-34-9	100

**Toxicological Data on Ingredients:** Sulfur Flour: ORAL (LD): Acute: >8437 mg/kg [Rat].

#### Section 3: Hazards Identification

**Potential Acute Health Effects:**

Hazardous in case of eye contact (irritant). Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation (lung irritant).

**Potential Chronic Health Effects:**

Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to upper respiratory tract, skin. Repeated or prolonged exposure to the substance can produce target organs damage.

#### Section 4: First Aid Measures

**Eye Contact:**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

**Skin Contact:**

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

**Serious Skin Contact:**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

**Ingestion:**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

**Serious Ingestion:** Not available.

## Section 5: Fire and Explosion Data

**Flammability of the Product:** Flammable.

**Auto-Ignition Temperature:** 232°C (449.6°F)

**Flash Points:** CLOSED CUP: 207°C (404.6°F).

**Flammable Limits:** Not available.

**Products of Combustion:** Not available.

**Fire Hazards in Presence of Various Substances:**

Flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks.

**Explosion Hazards in Presence of Various Substances:**

Explosive in presence of open flames and sparks. Non-explosive in presence of shocks.

**Fire Fighting Media and Instructions:**

Flammable solid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

**Special Remarks on Fire Hazards:**

Vapors given off during melting of Sulfur may contain sufficient Hydrogen Sulfide and Carbon Disulfide to permit ignition of air/vapor mixture on contact with hot surface. Such ignition may result in transmission of flames to molten Sulfur. Mixture of Barium carbide and sulfur heated at 150 deg. C becomes incandescent. Mixture of barium chlorate and Sulfur ignites at about 108-111 deg. C. Calcium carbide reacts incandescently with sulfur vapors at 500 deg. C. Calcium phosphide reacts with sulfur incandescently at 300 deg. C Powdered sulfur is spontaneously flammable when mixed with Lampblack or freshly calcined charcoal. Sulfur in chlorine dioxide takes fire spontaneously and may produce an explosion. Flowers of sulfur moistened with chromyl chloride ignites spontaneously. A mixture of lead chlorate and sulfur ignites at about 63-67 deg. C. A mixture of sulfur and silver chlorate ignites at about 74 deg. C. When finely divided sulfur is ground with silver oxide, the mixture ignites. Solid sulfur will ignite when mixed with solid sodium chlorite and moistened. Lithium carbide burns in vapors of sulfur Sulfur mixed with mercurous oxide will ignite on light impact. Powdered nickel heated with sulfur reacts with incandescence. Sulfur when heated with Thorium reacts vigorously with incandescence. Mixture of sulfur + niobium oxide + aluminum causes fire. A mixture of boron and sulfur becomes incandescent 600 deg. C.

**Special Remarks on Explosion Hazards:**

SULFUR IS POOR CONDUCTOR OF ELECTRICITY & TENDS TO DEVELOP CHARGES OF STATIC ELECTRICITY DURING TRANSPORT OR PROCESSING; STATIC DISCHARGE MAY LEAD TO IGNITION OF SULFUR DUST. Sulfur + Ammonia may form explosive Sulfur Nitride. Ammonium Nitrate + Sulfur can be exploded by shock. Mixtures of Ammonium Perchlorate and Sulfur are impact sensitive. Interaction between Sulfur and Tetraphenyllead may be explosive. A mixture

of sulfur + stannic iodide + sodium produces a strong explosion on impact. When sulfur is rubbed with sodium the reaction proceeds with explosive violence. When a mixture of Sulfur and yellow phosphorous is warmed it causes a vivid combustion and powerful explosion. Iodine Pentoxide reacts explosively when warmed with sulfur. Potassium Perchlorate + Sulfur, used in flashcrackers, can be exploded by moderately strong impact. COMBINATION OF FINELY DIVIDED SULFUR & FINELY DIVIDED BROMATES (ALSO CHLORATES OR IODATES) OF BARIUM, CALCIUM, MAGNESIUM, POTASSIUM, SODIUM, OR ZINC WILL EXPLODE WITH HEAT, PERCUSSION, & SOMETIMES, LIGHT FRICTION. A mixture of sulfur and chlorates will explode. Sulfur + silver bromate produces an explosive reaction in the presence of water.

## Section 6: Accidental Release Measures

**Small Spill:** Use appropriate tools to put the spilled solid in a convenient waste disposal container.

**Large Spill:**

Flammable solid. Stop leak if without risk. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal.

## Section 7: Handling and Storage

**Precautions:**

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, metals.

**Storage:**

Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

## Section 8: Exposure Controls/Personal Protection

**Engineering Controls:**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection:**

Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

TWA: 10 STEL: 20 (mg/m<sup>3</sup>) [Canada] Inhalation Nuisance Dust: TWA: 15 (mg/m<sup>3</sup>) from OSHA (PEL) [United States] Inhalation Total. TWA: 5 (mg/m<sup>3</sup>) from OSHA (PEL) [United States] Inhalation Respirable. Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Solid.

**Odor:**

Odorless. Pure Sulfur is odorless, but traces of hydrocarbon impurity may impart an oily and/or rotten egg odor.

**Taste:** Tasteless. Faint taste

**Molecular Weight:** 32.06 g/mole

**Color:** Yellow.

**pH (1% soln/water):** Not applicable.

**Boiling Point:** 445°C (833°F)

**Melting Point:** 112°C (233.6°F) - 120 C

**Critical Temperature:** 1040°C (1904°F)

**Specific Gravity:** Density: 2.07 (Water = 1)

**Vapor Pressure:** Not applicable.

**Vapor Density:** Not available.

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** See solubility in water, acetone.

**Solubility:**

Partially soluble in acetone. Very slightly soluble in diethyl ether. Insoluble in cold water, hot water. Sparingly soluble in alcohol. Soluble in Toluene. Solubility in Acetone: 2.65% @25 deg. C. Solubility in Methylene Iodide: 9.1% @ 10 deg. C. Solubility in Chloroform: 1.5% @ 18 deg. C.

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Heat, ignition sources, incompatible materials

**Incompatibility with various substances:** Reactive with oxidizing agents, metals.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:**

Incompatible with ammonia, ammonium nitrate, ammonium perchlorate, barium carbide, barium chlorate, calcium phosphide, calcium carbide, Lampblack, also chlorates, or iodates) of Barium, Magnesium, Calcium, Potassium, Sodium, or Zinc, Calcium Hypchlorite, Silver Bromate, Lithium Carbide, Lead Dioxide, Potassium Chlorate, Sodium Hydride, Thorium, aluminum + niobium oxide, Bromine Pentafluoride, Boron, Bromine trifluoride, calcium, chlorine monoxide gas, chlorine trifluoride, indium, Iodine pentaoxide, Lithium, Nitrogen dioxide, yellow phosphorous, Potassium Nitride, Uranium, Tetraphenyllead. freshly calcined charcoal, lead chlorate, finely divided bromates (

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** Will not occur.

## Section 11: Toxicological Information

**Routes of Entry:** Inhalation. Ingestion.

**Toxicity to Animals:** Acute oral toxicity (LD): >8437 mg/kg [Rat].

**Chronic Effects on Humans:** May cause damage to the following organs: upper respiratory tract, skin.

**Other Toxic Effects on Humans:**

Slightly Hazardous in case of inhalation (lung irritant). Slightly hazardous in case of skin contact (irritant), of ingestion.

**Special Remarks on Toxicity to Animals:**

Lowest Published Lethal Dose: LDL [Rabbit] - Route: Oral; Dose: 175 mg/kg.

**Special Remarks on Chronic Effects on Humans:** Not available.

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Effects: Skin: May cause skin irritation or rash. Eyes: May cause eye irritation with tearing, burning, scratchy discomfort, and blurring of vision, and possible eye damage (damage to the lens, formation of opacities, cataracts, and focal chorioretinitis. Inhalation: Breathing sulfur can irritate the nose, throat, lungs, causing coughing, wheezing, sneezing, and/or shortness of breath/dyspnea. It may cause inflammation in the respiratory tract resulting in tracheobronchitis, inflammation of nasal mucosa with increased secretions, pulmonary edema, pneumonia, Ingestion: May cause gastrointestinal tract irritation with nausea, vomiting, and diarrhea. Sulfur is not particularly toxic when ingested. Ingestion of 60 grams has been survived. However, if not promptly eliminated, theoretically, ingestion of large doses may lead to hydrogen sulfide production in chiefly due to bacterial action in the colon. Small particles are more toxic than large ones. It may affect behavior/ central nervous system/peripheral nervous system (headache, vertigo, amnesia, fatigue, seizures, agitation, peripheral neuropathy, coma), and kidneys. Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may cause allergic dermatitis (dermatitis venenata). Ingestion: Prolonged or repeated ingestion may cause metabolic acidosis. It may also affect the liver (increase levels of liver enzymes) Inhalation: Prolonged or repeated inhalation may cause bronchitis, various bronchopulmonary diseases, including emphysema, bronchiectasis, thiopneumoconiosis (sulfur pneumoconiosis), and asthma. It may also causes changes in the thyroid gland.

## Section 12: Ecological Information

**Ecotoxicity:** Ecotoxicity in water (LC50): 10000 ppm 96 hours [Fish (Mosquito fish)].

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The product itself and its products of degradation are not toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

## Section 13: Disposal Considerations

**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## Section 14: Transport Information

**DOT Classification:** CLASS 4.1: Flammable solid.

**Identification:** : Sulfur UNNA: 1350 PG: III

**Special Provisions for Transport:**

Spectrum Laboratory Products does not ship this material in bulk quantities as defined in 49CFR. Therefore, shipment of this materials by Spectrum is not DOT regulated per special provision 30 as stated in 49CFR, 172.102

## Section 15: Other Regulatory Information

**Federal and State Regulations:**

Connecticut hazardous material survey.: Sulfur Flour Rhode Island RTK hazardous substances: Sulfur Flour Pennsylvania RTK: Sulfur Flour Massachusetts RTK: Sulfur Flour New Jersey: Sulfur Flour California Director's List of Hazardous Substances: Sulfur Flour TSCA 8(b) inventory: Sulfur Flour

**Other Regulations:**

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

**Other Classifications:**

**WHMIS (Canada):** CLASS B-4: Flammable solid.

**DSCL (EEC):**

R10- Flammable. R36/37- Irritating to eyes and respiratory system. S24/25- Avoid contact with skin and eyes. S36/37/39- Wear suitable protective clothing, gloves and eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**HMIS (U.S.A.):**

**Health Hazard:** 2

**Fire Hazard:** 2

**Reactivity:** 0

**Personal Protection:** E

**National Fire Protection Association (U.S.A.):**

**Health:** 2

**Flammability:** 1

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:**

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

**Section 16: Other Information**

**References:** Not available.

**Other Special Considerations:** Not available.

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