



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name Sulfur (solid)
Version # 01
Revision date 06-02-2010
Product use Industrial chemical.
Manufacturer/Supplier Devon US Operations
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Oklahoma City, OK 73102-8260
Telephone: (405) 235-3611
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Devon Canadian Operations
Calgary, AB. T2P 4H2
2000, 400 – 3rd Avenue SW.
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Emergency Emergency Chemtrec:
Within the USA (800) 424-9300
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Devon Canada Emergency Phone:
(403) 232-7100

2. Hazards Identification

Physical state Solid.
Appearance Yellow solid.
Emergency overview CAUTION

Flammable Solid. May cause eye, skin and respiratory tract irritation.
OSHA regulatory status This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects
Routes of exposure Eye contact. Skin contact. Inhalation.
Eyes Dust may irritate the eyes.
Skin Dust or powder may irritate the skin.
Inhalation Inhalation of powder may cause inflammation of the nose and the respiratory tract.
Ingestion May cause discomfort if swallowed.
Target organs Eyes. Skin. Respiratory system. Lungs.
Chronic effects Chronic inhalation of fumes or dust may cause irritation or other respiratory conditions (e.g., bronchitis). Prolonged skin contact may cause dermatitis.
Signs and symptoms Coughing. Irritation of eyes and mucous membranes. May cause irritation through mechanical abrasion. Dermatitis. Wheezing. Repeated contact may induce allergic response.
Potential environmental effects The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Sulphur	7704-34-9	100

Composition comments * All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First Aid Measures

First aid procedures

Eye contact Dust in the eyes: Do not rub eyes. Remove contact lenses, if present and easy to do. Flush eyes immediately with large amounts of water. Get medical attention if irritation develops or persists.
Skin contact Flush skin thoroughly with water. Get medical attention if irritation develops and persists.

Inhalation

Move to fresh air. Get medical attention if any discomfort continues.

Ingestion

Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Never give anything by mouth to an unconscious person. Get medical attention if any discomfort continues.

Notes to physician

Treat symptomatically. Symptoms may be delayed.

General advice

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures

Flammable properties

Flammable solid. Dust may form explosive mixture with air.

Extinguishing media

Suitable extinguishing media

Use: Water spray. Foam. Powder. Dry sand.

Unsuitable extinguishing media

None.

Protection of firefighters

Protective equipment and precautions for firefighters

Firefighters should wear full protective clothing including self contained breathing apparatus. Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace.

Specific methods

Cool containers exposed to heat with water spray and remove container, if no risk is involved.

Hazardous combustion products

Sulfur oxides.

6. Accidental Release Measures

Personal precautions

Use explosion-proof electrical equipment if airborne dust levels are high. Avoid inhalation of dust and contact with skin and eyes. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use Personal Protective Equipment recommended in Section 8 of the MSDS.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not contaminate water.

Methods for containment

Stop leak if you can do so without risk.

Methods for cleaning up

Avoid dust formation. Use explosion proof electric equipment. Collect powder using special dust vacuum cleaner with particle filter or carefully sweep into closed container. For waste disposal, see Section 13 of the MSDS.

Other information

Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling

Provide explosion-proof ventilation for high dust concentrations. Avoid dust formation. Avoid inhalation of dust and contact with skin and eyes. Use only with adequate ventilation. Use Personal Protective Equipment recommended in section 8 of the MSDS. Wash thoroughly after handling. Observe good industrial hygiene practices.

Storage

Follow rules for flammable solids. Store in tightly closed original container in a dry and cool place. Store away from incompatible materials.

8. Exposure Controls / Personal Protection

Occupational exposure limits

Canada - Alberta

Components

Type

Value

Sulphur (7704-34-9)

TWA

10 mg/m3

Engineering controls

Use explosion-proof electrical equipment if airborne dust levels are high. Ventilate as needed to control airborne dust. Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of dust.

Personal protective equipment

Eye / face protection

Wear dust-resistant safety goggles where there is danger of eye contact.

Skin protection

Protective clothing is not required under normal conditions. Wear suitable gloves.

Respiratory protection

Wear approved respiratory protection when working with this material unless ventilation or other engineering controls are adequate to keep airborne concentrations below recommended exposure standards. Follow respirator protection program requirements (OSHA 1910.134 or CSA-Z94.4-02(R2008), and ANSI / AIHA Z88.6) for all respirator use.

General hygiene considerations

Do not breathe dust. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical & Chemical Properties

Appearance	Yellow solid.
Color	Yellow.
Odor	Faint rotten egg.
Odor threshold	Not available.
Physical state	Solid.
Form	Solid.
pH	Not available.
Melting point	235.4 - 251.6 °F (113 - 122 °C)
Freezing point	Not available.
Boiling point	832.3 °F (444.6 °C)
Flash point	370.4 - 404.6 °F (188 - 207 °C) Closed Cup
Evaporation rate	Not available.
Flammability	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Vapor pressure	1 mm Hg (184°C/ 363.2°F)
Vapor density	Not available.
Specific gravity	2.07 (water=1)
Solubility (water)	Insoluble in water.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	374 °F (190 °C)
Decomposition temperature	Not available.

10. Chemical Stability & Reactivity Information

Chemical stability	Stable.
Conditions to avoid	Dust generation. Heat, sparks, flames. Moisture. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Sulfur oxide.
Possibility of hazardous reactions	Will not occur.

11. Toxicological Information

Acute effects	Dusts may irritate the respiratory tract, skin and eyes. Inhalation of powder may cause inflammation of the nose and the respiratory tract.
Sensitization	Not a skin sensitizer.
Chronic effects	Chronic inhalation of fumes or dust may cause irritation or other respiratory conditions (e.g., bronchitis). Prolonged skin contact may cause dermatitis.
Carcinogenicity	Not classified.
Mutagenicity	No data available.
Neurological effects	No data available.
Reproductive effects	No data available.
Teratogenicity	No data available.
Further information	Repeated contact may induce allergic response.

12. Ecological Information

Ecotoxicological data

Components

Test Results

Sulphur (7704-34-9)	LC50 Western mosquitofish (<i>Gambusia affinis</i>): > 10000 mg/l 96 hours
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Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Environmental effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Persistence and degradability	No data available.
Bioaccumulation / Accumulation	No data available.
Partition coefficient (n-octanol/water)	Not available.
Mobility in environmental media	The product is insoluble in water and will sediment in water systems.

13. Disposal Considerations

Waste codes	Not regulated.
Disposal instructions	Dispose of this material and its container at hazardous or special waste collection point.
Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information

DOT

Basic shipping requirements:

UN number	UN1350
Proper shipping name	Sulfur
Hazard class	4.1
Packing group	III
Environmental hazards	
Marine pollutant	No
Labels required	4.1
Additional information:	
Special provisions	30, IB8, IP3, T1, TP33
Packaging exceptions	None
Packaging non bulk	None
Packaging bulk	240
ERG number	133

IATA

Basic shipping requirements:

UN number	1350
Proper shipping name	Sulphur
Hazard class	4.1
Packing group	III

IMDG

Basic shipping requirements:

UN number	1350
Proper shipping name	Sulfur
Hazard class	4.1
Packing group	III
Environmental hazards	
Marine pollutant	No
EmS No.	F-A, S-G

TDG

Basic shipping requirements:

Proper shipping name Sulfur
Hazard class 4.1
UN number UN1350
Packing group III
Marine pollutant No
Additional information:
Special provisions 33



DOT



IATA



IMDG



TDG

15. Regulatory Information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
CERCLA/SARA Hazardous Substances - Not applicable.

CERCLA (Superfund) reportable quantity (lbs)

None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance No

Section 311 hazardous chemical No

Drug Enforcement Agency (DEA) Not controlled

WHMIS status Controlled

WHMIS classification B4 - Flammable/Combustible

WHMIS labeling



State regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US - California Hazardous Substances (Director's): Listed substance

Sulphur (CAS 7704-34-9) Listed.

US - Massachusetts RTK - Substance: Listed substance

Sulphur (CAS 7704-34-9) Listed.

US - New Jersey RTK - Substances: Listed substance

Sulphur (CAS 7704-34-9) Listed.

US - Pennsylvania RTK - Hazardous Substances: Listed substance

Sulphur (CAS 7704-34-9) Listed.

16. Other Information

Further information	HMIS® is a registered trade and service mark of the NPCA. X - Specialized Handling
HMIS® ratings	Health: 2 Flammability: 1 Physical hazard: 0 Personal protection: X
NFPA ratings	Health: 2 Flammability: 1 Instability: 0
Disclaimer	This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.
Issue date	06-02-2010