

Material Safety Data Sheet

Version 4.1

Revision Date 04/08/2010

Print Date 04/09/2010

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Sulfur

Product Number : 215236

Brand : Sigma-Aldrich

Company : Sigma-Aldrich Canada, Ltd
2149 Winston Park Drive
OAKVILLE ON L6H 6J8
CANADA

Telephone : +19058299500

Fax : +19058299292

Emergency Phone # : 800-424-9300

2. HAZARDS IDENTIFICATION

Emergency Overview

WHMIS Classification

B4 Flammable solid

Flammable solid

GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)

H228

Flammable solid.

H303 + H313

May be harmful if swallowed or in contact with skin.

H333

May be harmful if inhaled.

Precautionary statement(s)

P210

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

HMIS Classification

Health hazard: 1

Flammability: 1

Physical hazards: 2

Potential Health Effects

Inhalation

May be harmful if inhaled. May cause respiratory tract irritation.

Skin

May be harmful if absorbed through skin. May cause skin irritation.

Eyes

May cause eye irritation.

Ingestion

May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : sulfur (Aerosol)

Formula : S

Molecular Weight : 32.07 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
---------	--------	-----------	---------------

Sulfur			
7704-34-9	231-722-6	-	-

4. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Avoid dust formation. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Store in cool place.

Keep in a dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

For prolonged or repeated contact use protective gloves.

Eye protection

Safety glasses with side-shields conforming to EN166

Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES**Appearance**

Form	powder
Colour	light yellow
Odour	slight

Safety data

pH	no data available
Melting point	118 - 120 °C (244 - 248 °F)
Boiling point	444.7 °C (832.5 °F)
Flash point	168 °C (334 °F) - closed cup
Flammability (solid, gas)	The substance or mixture is a flammable solid with the subcategory 2.
Ignition temperature	232 °C (450 °F)
Lower explosion limit	0.17 %(V)
Upper explosion limit	6.83 %(V)
Vapour pressure	10 hPa (8 mmHg) at 246 °C (475 °F) 1 hPa (1 mmHg) at 183.8 °C (362.8 °F)
Density	2.05 g/cm ³ at 20 °C (68 °F)
Water solubility	insoluble
Viscosity, kinematic	8 mm ² /s at 140 °C (284 °F)

10. STABILITY AND REACTIVITY**Chemical stability**

Stable under recommended storage conditions.

Conditions to avoid

Heat, flames and sparks.

Materials to avoid

Strong oxidizing agents Amines, Bases

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Sulphur oxides

11. TOXICOLOGICAL INFORMATION**Acute toxicity**

LDLO Oral - rabbit - 175 mg/kg

LD50 Oral - rat - > 2,000 mg/kg

LC50 Inhalation - rat - 4 h - > 9.23 mg/l

LD50 Dermal - rabbit - > 2,000 mg/kg

LDLO Intravenous - rat - 8 mg/kg

LDLO Intravenous - rabbit - 5 mg/kg

LDLO Intraperitoneal - guinea pig - 55 mg/kg

LDLO Intravenous - dog - 10 mg/kg

Skin corrosion/irritation

Skin - rabbit - No skin irritation

Serious eye damage/eye irritation

Eyes - rabbit - No eye irritation

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

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.

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure (GHS)

no data available

Specific target organ toxicity - repeated exposure (GHS)

no data available

Aspiration hazard

no data available

Potential health effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion	May be harmful if swallowed.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.

Signs and Symptoms of Exposure

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting., Dermatitis

Additional Information

RTECS: WS4250000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - > 180 mg/l - 96 h
	LC50 - other fish - 866 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates.	EC50 - Daphnia magna (Water flea) - > 5,000 mg/l - 48 h

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS**Product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION**DOT (US)**

NA-Number: 1350 Class: 4.1 Packing group: III
Proper shipping name: Sulfur
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG

UN-Number: 1350 Class: 4.1 Packing group: III EMS-No: F-A, S-G
Proper shipping name: SULPHUR
Marine pollutant: No

IATA

UN-Number: 1350 Class: 4.1 Packing group: III
Proper shipping name: Sulphur

15. REGULATORY INFORMATION**DSL Status**

All components of this product are on the Canadian DSL list.

WHMIS Classification

B4 Flammable solid Flammable solid

16. OTHER INFORMATION**Further information**

Copyright 2010 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.
