

Simplot Molten Sulfur

Safety Data Sheet

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

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

1.1. Product identifier

Product form : Mixture
Product name : Simplot Molten Sulfur
Product code : M17500

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

1.3. Details of the supplier of the safety data sheet

JR Simplot Company
Boise, ID 83707
T 1-208-336-2110

1.4. Emergency telephone number

Emergency number : CHEMTREC 1-800-424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Skin Irrit. 2 H315
Eye Irrit. 2B H320

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS07

Signal word (GHS-US) :

Warning

Hazard statements (GHS-US) :

H315 - Causes skin irritation
H320 - Causes eye irritation

Precautionary statements (GHS-US) :

P264 - Wash ... thoroughly after handling
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P302 + P352 - If on skin: Wash with plenty of water/...
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P321 - Specific treatment (see ... on this label)
P332 + P313 - If skin irritation occurs: Get medical advice/attention
P337 + P313 - If eye irritation persists: Get medical advice/attention
P362 - Take off contaminated clothing and wash before reuse

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
sulfur	(CAS No) 7704-34-9	<= 100	Skin Irrit. 2, H315 Eye Irrit. 2B, H320

Simplot Molten Sulfur

Safety Data Sheet

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

Name	Product identifier	%	Classification (GHS-US)
hydrogen sulphide, liquefied	(CAS No) 7783-06-4	< 1	Flam. Gas 1, H220 Acute Tox. 2 (Inhalation:gas), H330 Acute Tox. 2 (Inhalation:dust,mist), H330 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335 Aquatic Acute 1, H400

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. Allow the victim to rest.
- First-aid measures after skin contact : Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention. Specific treatment (see ... on this label).
- First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

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

- Symptoms/injuries after skin contact : Causes skin irritation.
- Symptoms/injuries after eye contact : Causes eye irritation.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.
- Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

- Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.
- Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

Simplot Molten Sulfur

Safety Data Sheet

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

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor.
- Hygiene measures : Wash ... thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.
- Incompatible products : Strong bases. Strong acids.
- Incompatible materials : Sources of ignition. Direct sunlight.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

sulfur (7704-34-9)		
USA ACGIH	ACGIH TWA (mg/m ³)	3 mg/m ³

hydrogen sulphide, liquefied (7783-06-4)		
USA ACGIH	ACGIH TWA (ppm)	1 ppm
USA ACGIH	ACGIH STEL (ppm)	1 ppm

8.2. Exposure controls

- Personal protective equipment : Avoid all unnecessary exposure.
- Hand protection : Wear protective gloves.
- Eye protection : Chemical goggles or safety glasses.
- Skin and body protection : Wear suitable protective clothing.
- Respiratory protection : Wear appropriate mask.
- Other information : Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Liquid
- Color : Yellow brown to bright yellow
- Odor : Rotten egg smell
- Odor threshold : No data available
- pH : No data available
- Relative evaporation rate (butyl acetate=1) : No data available
- Melting point : No data available
- Freezing point : No data available
- Boiling point : 445 °C
- Flash point : 207 °C
- Auto-ignition temperature : 232 °C
- Decomposition temperature : No data available
- Flammability (solid, gas) : No data available
- Vapor pressure : No data available
- Relative vapor density at 20 °C : No data available
- Relative density : No data available
- Solubility : Insoluble in water.
Water: Solubility in water of component(s) of the mixture :
• : • : 0.4 g/100ml
- Log Pow : No data available
- Log Kow : No data available

Simplot Molten Sulfur

Safety Data Sheet

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

Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Not established.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Simplot Molten Sulfur	
LC50 inhalation rat (mg/l)	9 mg/l
ATE US (vapors)	9.00000000 mg/l/4h
ATE US (dust, mist)	9.00000000 mg/l/4h

sulfur (7704-34-9)	
LD50 oral rat	> 5000 mg/kg (Rat)
LD50 dermal rabbit	> 2000 mg/kg (Rabbit)
LC50 inhalation rat (mg/l)	> 9.23 mg/l/4h (Rat)

hydrogen sulphide, liquefied (7783-06-4)	
LC50 inhalation rat (ppm)	444 ppm/4h (Rat; Literature)
ATE US (gases)	444.00000000 ppmV/4h
ATE US (dust, mist)	0.05000000 mg/l/4h

Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Causes eye irritation.
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/injuries after skin contact : Causes skin irritation.

Simplot Molten Sulfur

Safety Data Sheet

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

Symptoms/injuries after eye contact : Causes eye irritation.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Toxic to aquatic life.

sulfur (7704-34-9)	
LC50 fish 1	866 mg/l (96 h; Brachydanio rerio)
LC50 fish 2	> 100 mg/l 96 h; Salmo gairdneri (Oncorhynchus mykiss)
TLM fish 1	10000 ppm (96 h; Gambusia affinis)
Threshold limit other aquatic organisms 1	> 10000 mg/l (24 h; Daphnia magna)

hydrogen sulphide, liquefied (7783-06-4)	
LC50 fish 1	0.016 mg/l (96 h; Pimephales promelas)
EC50 Daphnia 1	1 - 10 mg/l (96 h; Daphnia magna; Locomotor effect)
EC50 other aquatic organisms 1	0.068 mg/l (0.5 h; Acartia sp.; Salt water)
LC50 fish 2	0.013 mg/l 96 h; Salmo gairdneri (Oncorhynchus mykiss)
EC50 Daphnia 2	0.12 mg/l (48 h; Daphnia sp.; Measured concentration)
TLM fish 1	> 0.0071 mg/l (96 h; Pimephales promelas)
TLM fish 2	> 0.0090 mg/l (96 h; Lepomis macrochirus)
Threshold limit algae 1	1.87 mg/l (24 h; Scenedesmus sp.; Growth rate)

12.2. Persistence and degradability

Simplot Molten Sulfur	
Persistence and degradability	Not established.

sulfur (7704-34-9)	
Persistence and degradability	Biodegradability: not applicable. Biodegradability in soil: not applicable. Adsorbs into the soil. Not established.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

hydrogen sulphide, liquefied (7783-06-4)	
Persistence and degradability	Biodegradability in water: no data available. Biodegradability in soil: not applicable. Not established.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

12.3. Bioaccumulative potential

Simplot Molten Sulfur	
Bioaccumulative potential	Not established.

sulfur (7704-34-9)	
Log Pow	0.23 (Estimated value)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4). Not established.

hydrogen sulphide, liquefied (7783-06-4)	
Log Pow	0.45 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4). Not established.

12.4. Mobility in soil

sulfur (7704-34-9)	
Ecology - soil	Not toxic to bees.

hydrogen sulphide, liquefied (7783-06-4)	
Surface tension	0.03 N/m (-61 °C)
Ecology - soil	May be harmful to plant growth, blooming and fruit formation.

Simplot Molten Sulfur

Safety Data Sheet

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

12.5. Other adverse effects

- Effect on ozone layer : No additional information available
- Effect on the global warming : No known ecological damage caused by this product.
- Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to ...
- Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

- In accordance with DOT
- Transport document description : NA2448 Sulfur, molten, 9, III
- DOT NA no. : NA2448
- DOT Proper Shipping Name : Sulfur, molten
- Department of Transportation (DOT) Hazard Classes : 9 - Class 9 - Miscellaneous hazardous material 49 CFR 173.140
- Hazard labels (DOT) : 9 - Class 9 (Miscellaneous dangerous materials)



- DOT Symbols : D - Proper shipping name for domestic use only, or to and from Canada
- Packing group (DOT) : III - Minor Danger
- DOT Special Provisions (49 CFR 172.102) : 30 - Sulfur is not subject to the requirements of this subchapter if transported in a non-bulk packaging or if formed to a specific shape (for example, prills, granules, pellets, pastilles, or flakes). A bulk packaging containing sulfur is not subject to the placarding requirements of subpart F of this part, if it is marked with the appropriate identification number as required by subpart D of this part. Molten sulfur must be marked as required by 172.325 of this subchapter. IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672). T1 - 1.5 178.274(d)(2) Normal..... 178.275(d)(2) TP3 - The maximum degree of filling (in %) for solids transported above their melting points and for elevated temperature liquids shall be determined by the following: Degree of filling = $95 * dr / df$ Where: df and dr are the mean densities of the liquid at the mean temperature of the liquid during filling and the maximum mean bulk temperature during transport respectively.
- DOT Packaging Exceptions (49 CFR 173.xxx) : None
- DOT Packaging Non Bulk (49 CFR 173.xxx) : 213
- DOT Packaging Bulk (49 CFR 173.xxx) : 247
- DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : Forbidden
- DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : Forbidden
- DOT Vessel Stowage Location : C - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel.
- DOT Vessel Stowage Other : 61 - Stow "separated from" corrosive materials

Additional information

- Other information : No supplementary information available.

ADR

- Transport document description :

Transport by sea

- No additional information available

Simplot Molten Sulfur

Safety Data Sheet

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

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

hydrogen sulphide, liquefied (7783-06-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on United States SARA Section 313

RQ (Reportable quantity, section 304 of EPA's List of Lists) : 100 lb

SARA Section 302 Threshold Planning Quantity (TPQ) 500 lb

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Classification according to Directive 67/548/EEC or 1999/45/EC

Not classified

15.2.2. National regulations

No additional information available

15.3. US State regulations

sulfur (7704-34-9)

U.S. - New Jersey - Right to Know Hazardous Substance List

hydrogen sulphide, liquefied (7783-06-4)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Other information :
: None.

Full text of H-phrases: see section 16:

Acute Tox. 2 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 2
Acute Tox. 2 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 2
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Eye Irrit. 2B	Serious eye damage/eye irritation Category 2B
Flam. Gas 1	Flammable gases Category 1
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H220	Extremely flammable gas
H315	Causes skin irritation
H319	Causes serious eye irritation
H320	Causes eye irritation
H330	Fatal if inhaled
H335	May cause respiratory irritation
H400	Very toxic to aquatic life

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