



# SAFETY DATA SHEET

SDS ID NO.: 0355MAR019

Revision date 12/28/2021

## 1. IDENTIFICATION

**Product Name** Marathon Petroleum Solid Sulfur

**Synonym** Crushed Bulk Sulfur; Elemental Sulfur; Flower Sulfur; Pelletized Sulfur; Powdered Sulfur; Prilled Sulfur; Solid Sulfur; Sulphur

**Product code** 0355MAR019

**Chemical family** Non-metallic element

**Recommended use** Feedstock.

**Restrictions on use** All others.

**Manufacturer, Importer, or Responsible Party Name and Address**  
**MARATHON PETROLEUM COMPANY LP**  
**539 South Main Street**  
**Findlay, OH 45840**

**SDS Information** 1-419-421-3070 (M-F; 8-5 EST)

**24 Hour Emergency Telephone** CHEMTREC: 1-800-424-9300 (CCN# 13740)

## 2. HAZARD IDENTIFICATION

### OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

### Classification

Combustible dust	OSHA defined hazard
Skin corrosion/irritation	Category 2

### Hazards Not Otherwise Classified (HNOC)

May release hydrogen sulfide gas

### Label Elements

#### **Warning**

May form combustible dust concentrations in air (during processing)  
Causes skin irritation  
Heated material may release highly toxic hydrogen sulfide gas that quickly fatigues the sense of smell



**Appearance** Yellow solid

**Physical State** Solid

**Odor** Rotten egg like

**Precautionary Statements - Prevention**

Minimize dust generation and accumulation  
 Keep away from sources of ignition - No smoking  
 Wear protective gloves  
 Wash hands and any possibly exposed skin thoroughly after handling  
 Avoid release to the environment

**Precautionary Statements - Response**

Routine housekeeping should be instituted to ensure dust does not accumulate on surfaces  
 If on skin: Wash with plenty of soap and water  
 If skin irritation occurs: Get medical attention  
 Take off contaminated clothing and wash before reuse

**Precautionary Statements - Storage**

Store in a cool and well-ventilated area

**Precautionary Statements - Disposal**

Dispose of contents/container at an approved waste disposal plant

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Composition Information**

Name	CAS Number	% Concentration
Sulfur	7704-34-9	100
Hydrogen sulfide	7783-06-4	0.01-0.06

All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

### 4. FIRST AID MEASURES

**First aid measures**

<b>General advice</b>	In case of accident or if you feel unwell, seek medical advice immediately (show directions for use or safety data sheet if possible).
<b>Inhalation</b>	Move victim to fresh air. Provide respiratory support, if necessary. If symptoms or irritation occur, call a physician.
<b>Skin contact</b>	Wash skin with plenty of soap and water. Get medical attention if irritation persists. Wash contaminated clothing before re-use.
<b>Eye contact</b>	Flush immediately with large amounts of water for at least 15 minutes. Gently remove contacts while flushing. Eyelids should be held away from the eyeball to ensure thorough rinsing. Gently remove contacts while flushing. Get medical attention if irritation persists.
<b>Ingestion</b>	Rinse mouth out with water. If symptoms develop, seek medical attention.

**Most important signs and symptoms, both short-term and delayed with overexposure**

<b>Adverse effects</b>	Irritating to the skin and mucous membranes. Symptoms may include redness, itching, and inflammation. Hydrogen sulfide can cause respiratory paralysis and death, depending on the concentration and duration of exposure. Do not rely on ability to smell vapors, since loss of smell rapidly occurs. Effects of overexposure include irritation of the nose and throat, nausea, vomiting, diarrhea, abdominal pain and signs of nervous system depression (e.g. headache, drowsiness, dizziness, loss of coordination and fatigue), irregular heartbeats, pulmonary edema, weakness and convulsions.
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**Indication of any immediate medical attention and special treatment needed**

<b>Notes to physician</b>	Treat symptomatically.  INHALATION: Inhalation exposure can produce toxic effects. Treat intoxications as hydrogen sulfide exposures. At high concentrations hydrogen sulfide may produce pulmonary edema, respiratory depression, and/or respiratory paralysis. The first priority in treatment should be the establishment of adequate ventilation and the administration of 100% oxygen. Monitor for respiratory distress. If cough or difficulty in breathing develops, evaluate for upper respiratory tract inflammation, bronchitis, and pneumonitis.
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## 5. FIRE-FIGHTING MEASURES

<b>Suitable extinguishing media</b>	For small fires, Class B fire extinguishing media such as CO <sub>2</sub> , dry chemical, foam or water spray can be used. For large fires, water spray, fog or foam can be used. Firefighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.
<b>Unsuitable extinguishing media</b>	Do not use straight water streams to avoid spreading fire.
<b>Specific hazards arising from the chemical</b>	Non-sparking tools/equipment should be considered when a potentially combustible dust environment exists.
<b>Hazardous combustion products</b>	Smoke, carbon monoxide, and other products of incomplete combustion.
<b>Explosion data</b>	
<b>Sensitivity to mechanical impact:</b>	No.
<b>Sensitivity to static discharge:</b>	Yes.
<b>Special protective equipment and precautions for firefighters</b>	Firefighters should wear full protective clothing and positive-pressure self-contained breathing apparatus (SCBA) with a full face-piece, as appropriate. Avoid using straight water streams. Water spray and foam must be applied carefully to avoid frothing and from as far a distance as possible. Keep surrounding area cool with water spray from a distance and prevent further ignition of combustible material. Avoid excessive water spray application. Keep run-off water out of sewers and water sources.
<b>Additional firefighting tactics</b>	Not applicable
<b>NFPA</b>	Health 2                      Flammability 1                      Instability 0                      Special Hazard -

## 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precautions</b>	Keep people away from and upwind of spill/leak. Dust deposits dispersed into the atmosphere in sufficient concentration may form an explosive mixture. Eliminate all ignition sources. Ensure adequate ventilation. Runoff may be acidic.
<b>Protective equipment</b>	Use personal protection measures as recommended in Section 8.
<b>Emergency procedures</b>	Advise authorities and National Response Center (800-424-8802) if the product has entered a water course or sewer. Notify local health and pollution control agencies, if appropriate.
<b>Environmental precautions</b>	Contain any runoff from precipitation.
<b>Methods and materials for containment</b>	Prevent dust cloud. Cover powder spill with plastic sheet or tarp to minimize spreading.
<b>Methods and materials for cleaning up</b>	Sweep up and shovel into suitable containers for disposal. Ensure all equipment is bonded and grounded. Use only non-sparking tools.

## 7. HANDLING AND STORAGE

### Safe handling precautions

To avoid the combustible dust hazard, minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations and cause an electrical spark. Provide adequate precautions, such as electrical grounding and bonding, or nonreactive atmospheres. Use non-sparking tools. Avoid contact with eyes. Avoid breathing dust. Refer to applicable EPA, OSHA, NFPA and consistent state and local requirements.

Harmful concentrations of hydrogen sulfide (H<sub>2</sub>S) gas can accumulate in excavations and low-lying areas as well as the vapor space of storage and bulk transport compartments. Stay upwind and vent open hatches before unloading. Sulfur containing products may cause polysulfide deposits (iron sulfide) to form inside iron storage tanks. These pyrophoric deposits, upon exposure to air, can ignite spontaneously.

### Storage conditions

Store in properly closed containers that are appropriately labeled and in a cool, well-ventilated area.

### Incompatible materials

Strong oxidizing agents.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

Name	ACGIH TLV	OSHA PELs	NIOSH IDLH
Sulfur 7704-34-9	-	-	-
Hydrogen sulfide 7783-06-4	1 ppm TWA 5 ppm STEL	Ceiling: 20 ppm Peak: 50 ppm	100 ppm

**Notes:** No further information available.

### Engineering measures

Local or general exhaust required in an enclosed area or when there is inadequate ventilation. Use mechanical ventilation equipment that is explosion-proof.

### Personal protective equipment

#### Eye protection

Dust goggles if use produces excessive dust/fume concentrations.

#### Skin and body protection

Protective disposable gloves to prevent skin exposure.

#### Respiratory protection

Wear dust respirator if use generates excessive dust. For heated material, use atmosphere supplying respirator in confined spaces or when H<sub>2</sub>S concentrations exceed permissible limits.

#### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

<b>Appearance</b>	Yellow solid
<b>Physical State</b>	Solid
<b>Color</b>	Yellow
<b>Odor</b>	Rotten egg like
<b>Odor Threshold</b>	No data available.

### Property

#### Values (method)

<b>pH</b>	Not applicable.
<b>Melting Point / Freezing Point</b>	112 °C / 233 °F

<b>Initial Boiling Point / Boiling Range</b>	444 °C / 832 °F
<b>Flash Point</b>	207 °C / 405 °F
<b>Evaporation Rate</b>	No data available.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Flammability Limit in Air (%):</b>	
<b>Upper Flammability Limit:</b>	No data available.
<b>Lower Flammability Limit:</b>	No data available.
<b>Explosion Limits</b>	No data available.
<b>Vapor Pressure</b>	1 mm Hg @ 362°F
<b>Vapor Density</b>	No data available.
<b>Specific Gravity / Relative Density</b>	2
<b>Water Solubility</b>	Insoluble in water
<b>Partition Coefficient</b>	No data available.
<b>Autoignition Temperature</b>	248-266 °C / 478-511 °F
<b>Decomposition Temperature</b>	No data available.
<b>Kinematic Viscosity</b>	No data available.
<b>VOC Content (%)</b>	No data available.

## 10. STABILITY AND REACTIVITY

<b>Reactivity</b>	The product is non-reactive under normal conditions.
<b>Chemical stability</b>	The material is stable at 70°F (21°C ), 760 mmHg pressure.
<b>Possibility of hazardous reactions</b>	None under normal processing.
<b>Hazardous polymerization</b>	Will not occur.
<b>Conditions to avoid</b>	Excessive heat, sources of ignition, open flame.
<b>Incompatible materials</b>	Strong oxidizing agents.
<b>Hazardous decomposition products</b>	None known under normal conditions of use.

## 11. TOXICOLOGICAL INFORMATION

### Potential short-term adverse effects from overexposures

<b>Inhalation</b>	Inhalation of dust may cause irritation of the respiratory system. Heated material may release highly toxic hydrogen sulfide gas that quickly fatigues the sense of smell. Concentrations of >1000 ppm will cause immediate unconsciousness and death through respiratory paralysis.
<b>Eye contact</b>	Dust may cause mechanical irritation of the eye. Effects may become more serious with repeated or prolonged contact.
<b>Skin contact</b>	Irritating to skin.
<b>Ingestion</b>	May cause irritation of the mouth, throat and gastrointestinal tract.

### Acute toxicological data

Name	Oral LD50	Dermal LD50	Inhalation LC50
Sulfur 7704-34-9	> 3000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 9.23 mg/L (Rat) 4 h
Hydrogen sulfide 7783-06-4	-	-	444 ppm (Rat) 4 h

### Immediate and delayed effects as well as chronic effects from short and long-term exposure

SULFUR: Prolonged or repeated exposure to sulfur dust can cause allergic sensitization and reduced pulmonary function.

Permanent eye damage (corneal opacities and cataract-like lesions) have been associated with long-term and high-level exposure to sulfur.

**HYDROGEN SULFIDE:** Hydrogen sulfide has a strong, unpleasant odor resembling that of rotten eggs. Odor, however, is not a reliable means for detecting potentially dangerous concentration of the gas, as the sense of smell diminishes very rapidly at concentrations of 50 ppm or higher. Eye irritation has been reported at 4 ppm. Irritation of the respiratory tract may occur at 50 ppm. Hydrogen sulfide gas may be fatal if inhaled in sufficient concentrations. Immediate loss of consciousness and death resulting from respiratory paralysis has occurred at concentrations as low as 500 ppm.

#### Adverse effects related to the physical, chemical and toxicological characteristics

<b>Signs and symptoms</b>	Irritating to the skin and mucous membranes. Symptoms may include redness, itching, and inflammation. Hydrogen sulfide can cause respiratory paralysis and death, depending on the concentration and duration of exposure. Do not rely on ability to smell vapors, since loss of smell rapidly occurs. Effects of overexposure include irritation of the nose and throat, nausea, vomiting, diarrhea, abdominal pain and signs of nervous system depression (e.g. headache, drowsiness, dizziness, loss of coordination and fatigue), irregular heartbeats, pulmonary edema, weakness and convulsions.
<b>Acute toxicity</b>	None known.
<b>Skin corrosion/irritation</b>	Causes skin irritation.
<b>Serious eye damage/eye irritation</b>	None known.
<b>Sensitization</b>	Not expected to be a skin or respiratory sensitizer.
<b>Mutagenic effects</b>	None known.
<b>Carcinogenicity</b>	This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP
<b>Reproductive toxicity</b>	None known.
<b>Specific Target Organ Toxicity (STOT) - single exposure</b>	Not classified.
<b>Specific Target Organ Toxicity (STOT) - repeated exposure</b>	Not classified.
<b>Aspiration hazard</b>	Not classified.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity** This product should be considered harmful to aquatic organisms.

Name	Fish	Crustacea	Algae/aquatic plants
Sulfur 7704-34-9	96-hr LC50 >10,000 mg/L Western mosquitofish 96-hr LC50 = 866 mg/L Zebrafish	-	-
Hydrogen sulfide 7783-06-4	96-hr LC50 = 0.016 mg/l Fathead minnow 96-hr LC50 = 0.013 mg/l Rainbow trout	-	-

**Persistence and degradability** No information available.

**Bioaccumulation** Not expected to bioaccumulate in aquatic organisms.

**Mobility in soil** Not classified in terms of mobility in air, soil and water.

**Other adverse effects** No information available.

### 13. DISPOSAL CONSIDERATIONS

**Description of waste residues** No information available.

**Safe handling of wastes** Handle in accordance with applicable local, state, and federal regulations. Use personal protection measures as required.

**Disposal of wastes / methods of disposal** The user is responsible for determining if any discarded material is a hazardous waste (40 CFR 262.11). Dispose of in accordance with federal, state and local regulations.

**Contaminated packaging disposal** Empty containers should be completely drained and then discarded or recycled, if possible. Dispose of in accordance with federal, state and local regulations.

### 14. TRANSPORT INFORMATION

#### DOT

**UN/Identification No:** NA 1350  
**UN Proper Shipping Name:** Sulfur  
**Transport Hazard Class(es):** 9  
**Packing Group:** III

#### IATA

**UN/Identification No:** UN 1350  
**UN Proper Shipping Name:** Sulphur  
**Transport Hazard Class(es):** 4.1  
**Packing Group:** III  
**ERG code:** 3L

#### IMDG

**UN/Identification No:** UN 1350  
**UN Proper Shipping Name:** Sulphur  
**Transport Hazard Class(es):** 4.1  
**Packing Group:** III  
**EmS No:** F-A, S-G

### 15. REGULATORY INFORMATION

#### Regulatory Information

**US TSCA Chemical Inventory** This product and/or its components are listed on the TSCA Chemical Inventory or are exempt.

**Canada DSL/NDSL Inventory** This product and/or its components are listed either on the Domestic Substances List (DSL) or are exempt.

#### EPA Superfund Amendment & Reauthorization Act (SARA)

**SARA Section 302** This product may contain component(s) that have been listed on EPA's Extremely Hazardous Substance (EHS) List:

Name	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs
Hydrogen sulfide	500

**SARA Section 304** This product may contain component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting

requirements:

Name	Hazardous Substances RQs
Hydrogen sulfide 7783-06-4	100 lb 45.4 kg

**SARA Section 311/312**

The following EPA hazard categories apply to this product:

Hazard Not Otherwise Classified (HNOC)-Physical  
Skin corrosion or irritation  
Hazard Not Otherwise Classified (HNOC)-Health

**SARA Section 313**

This product may contain component(s), which if in exceedance of the de minimus threshold, may be subject to the reporting requirements of SARA Title III Section 313 Toxic Release Reporting (Form R).

Name	CERCLA/SARA 313 Emission reporting
Hydrogen sulfide 7783-06-4	1.0 % de minimis concentration

**U.S. State Regulations****California Proposition 65**

This product can expose you to chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm.

For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

**State Right-To-Know Regulations** The following component(s) of this material are identified on the regulatory lists below:

Name	New Jersey Right-To-Know	Pennsylvania Right-To-Know	Massachusetts Right-To-Know
Sulfur 7704-34-9	Listed	Listed	Listed
Hydrogen sulfide 7783-06-4	Listed	Listed	Listed

## 16. OTHER INFORMATION

**Prepared by**

Toxicology &amp; Product Safety

**Revision Notes****Revision date**

12/28/2021

**Previous publish date**

06/11/2015

**Revised sections**

The following sections (§) have been updated:

2. HAZARD IDENTIFICATION
3. COMPOSITION/INFORMATION ON INGREDIENTS
4. FIRST AID MEASURES
7. HANDLING AND STORAGE
8. EXPOSURE CONTROLS/PERSONAL PROTECTION
11. TOXICOLOGICAL INFORMATION
14. TRANSPORT INFORMATION

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is intended as guidance for safe handling, use, processing, storage, transportation, accidental release, clean-up and disposal and is not considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.



