

# Sulfolane MSDS

## Section 1: Product Name and Identification

**Product Name:** [Sulfolane](#)

**Chemical Name:** Tetrahydrothiophene 1,1-dioxide

**Synonyms:** Tetramethylene sulfone, Thiophane dioxide, Tetrahydrothiophene-1,1-dioxide

**CAS Number:** 126-33-0

**Molecular Formula:** C<sub>4</sub>H<sub>8</sub>O<sub>2</sub>S

**Molecular Weight:** 120.17 g/mol

**Product Use:** Industrial solvent, extracting agent for aromatics, electrolyte in lithium batteries

**Supplier:** [Company Name]

**Emergency Phone:** [Emergency Contact Number]

**Date of Preparation:** [Current Date]

## Section 2: Composition/Ingredients

Component	CAS Number	Concentration (%)	Classification
Sulfolane	126-33-0	99.0-99.8	Chemical substance
Water	7732-18-5	0.1-0.5	Non-hazardous
Other impurities	Various	<0.5	Trace amounts

**Note:** Product purity may vary based on manufacturing grade and specifications.

## Section 3: Hazards Identification

**GHS Classification:**

- Acute Toxicity (Oral): Category 4
- Skin Irritation: Category 2
- Eye Irritation: Category 2A
- Specific Target Organ Toxicity (Repeated Exposure): Category 2

**Signal Word:** WARNING

**Hazard Statements:**

- H302: Harmful if swallowed
- H315: Causes skin irritation
- H319: Causes serious eye irritation
- H373: May cause damage to organs through prolonged or repeated exposure

**Precautionary Statements:**

- P260: Do not breathe vapor/mist
- P264: Wash hands thoroughly after handling
- P270: Do not eat, drink or smoke when using this product
- P280: Wear protective gloves/protective clothing/eye protection

**Physical Hazards:** Combustible liquid. Vapor may form explosive mixtures with air at elevated temperatures.

**Health Hazards:** Harmful if swallowed. Causes skin and eye irritation. May affect nervous system with prolonged exposure.

**Environmental Hazards:** May be harmful to aquatic life with long-lasting effects.

## **Section 4: First Aid Measures**

**Inhalation:**

- Remove person to fresh air immediately
- If breathing difficulties occur, provide oxygen
- Keep person warm and at rest
- Seek medical attention if symptoms persist

**Skin Contact:**

- Remove contaminated clothing carefully
- Wash affected skin with soap and plenty of water for at least 15 minutes
- If irritation develops or persists, seek medical attention
- Wash contaminated clothing before reuse

**Eye Contact:**

- Flush eyes immediately with clean water for at least 15 minutes
- Keep eyelids open during flushing
- Remove contact lenses if present and easily removable after initial flushing
- Seek medical attention if irritation persists

**Ingestion:**

- Rinse mouth thoroughly with water

- Do NOT induce vomiting unless directed by medical personnel
- Give small sips of water if person is conscious and alert
- Seek medical attention immediately
- Never give fluids to an unconscious person

**Most Important Symptoms:** Irritation of skin, eyes, and respiratory tract; central nervous system effects with prolonged exposure

**Notes to Physician:** Treat symptomatically and supportively. Monitor for signs of organ system effects.

## Section 5: Handling and Storage

### Precautions for Safe Handling:

- Use in well-ventilated areas or with adequate ventilation system
- Wear appropriate personal protective equipment
- Avoid contact with skin, eyes, and clothing
- Prevent inhalation of vapors or mist
- Use grounded equipment when transferring material
- Wash thoroughly after use

### Conditions for Safe Storage:

- Store in tightly closed containers in cool, dry area
- Keep away from heat, sparks, and open flames
- Storage temperature: 10-30°C (50-86°F)
- Protect from direct sunlight and moisture
- Store away from incompatible materials
- Use appropriate secondary containment

**Incompatible Materials:** Strong oxidizing agents, strong reducing agents, strong bases

## Section 6: Exposure Controls/Personal Protection

### Occupational Exposure Limits:

- ACGIH TLV-TWA: 10 ppm (50 mg/m<sup>3</sup>)
- OSHA PEL: Not established

### Engineering Controls:

- Provide adequate general and local exhaust ventilation
- Use explosion-proof equipment in areas where vapors may be present
- Install emergency eyewash and shower facilities

- Consider process enclosure where feasible

**Personal Protective Equipment:****Respiratory Protection:**

- Use NIOSH-approved organic vapor respirator when ventilation is inadequate
- Use supplied-air respirator in confined spaces or high-concentration areas

**Hand Protection:**

- Wear chemical-resistant gloves (butyl rubber or fluoroelastomer recommended)
- Check glove compatibility and replace when worn or contaminated

**Eye Protection:**

- Chemical safety glasses with side shields
- Face shield recommended for splash protection

**Skin Protection:**

- Wear long sleeves, long pants, and closed-toe shoes
- Chemical-resistant apron for operations involving splash potential
- Emergency shower should be accessible

## Section 7: Physical and Chemical Properties

**Appearance:** Clear, colorless liquid

**Odor:** Slight, sweet odor

**Odor Threshold:** Approximately 0.1 ppm

**pH:** Neutral (approximately 7)

**Melting Point:** 27.4°C (81.3°F)

**Boiling Point:** 287.3°C (549.1°F)

**Flash Point:** 165°C (329°F) - closed cup

**Evaporation Rate:** Very low

**Flammability Limits:** LEL: 1.8%; UEL: Not determined

**Vapor Pressure:** 0.62 mmHg at 37.7°C

**Vapor Density:** 4.1 (air = 1)

**Relative Density:** 1.261 g/cm<sup>3</sup> at 20°C

**Solubility:** Miscible with water, alcohols, ketones; limited solubility in hydrocarbons

**Partition Coefficient:** Log K<sub>ow</sub> = -0.77

**Auto-ignition Temperature:** >450°C (>842°F)

**Decomposition Temperature:** >300°C

**Viscosity:** 10.3 cP at 25°C

## Section 8: Stability and Reactivity

**Reactivity:** Generally stable under normal conditions. May react with strong oxidizers.

**Chemical Stability:** Stable under recommended storage conditions. Avoid high temperatures and incompatible materials.

**Possibility of Hazardous Reactions:** Polymerization does not occur under normal conditions.

**Conditions to Avoid:**

- High temperatures above 300°C
- Sources of ignition
- Incompatible materials
- Prolonged exposure to air at elevated temperatures

**Incompatible Materials:**

- Strong oxidizing agents
- Strong reducing agents
- Alkali metals
- Strong bases

**Hazardous Decomposition Products:**

- Sulfur oxides (SO<sub>x</sub>)
- Carbon oxides (CO, CO<sub>2</sub>)
- Formaldehyde
- Various organic fragments

## Section 9: Toxicological Information

**Information on Likely Routes of Exposure:**

- Inhalation: Primary route during industrial use
- Dermal: Through direct skin contact
- Ingestion: Accidental ingestion
- Eye: Direct contact with liquid or vapor

**Information on Toxicological Effects:**

**Acute Toxicity:**

- Oral LD50 (rat): 1540 mg/kg
- Dermal LD50 (rabbit): >2000 mg/kg
- Inhalation LC50 (4hr, rat): >5000 mg/m<sup>3</sup>

**Skin Corrosion/Irritation:** Mild to moderate skin irritation based on animal studies

**Serious Eye Damage/Irritation:** Causes moderate eye irritation

**Respiratory/Skin Sensitization:** No evidence of respiratory or skin sensitization

**Germ Cell Mutagenicity:** Negative in bacterial mutation assays

**Carcinogenicity:** Not classified as a carcinogen by major regulatory agencies

**Reproductive Toxicity:** Limited data suggests minimal reproductive effects at high doses

**Specific Target Organ Toxicity:**

- Single exposure: No specific target organs identified
- Repeated exposure: May affect nervous system and liver at high concentrations

**Aspiration Hazard:** Low viscosity may present aspiration risk if ingested

## Section 10: Disposal Considerations

**Waste Treatment Methods:**

- Dispose of according to applicable local, state, and federal regulations
- Incineration at approved high-temperature facility is preferred method
- Biological treatment may be suitable for aqueous solutions

**Disposal of Contaminated Packaging:**

- Empty containers should be triple-rinsed and disposed of properly
- Do not reuse containers for other purposes
- Follow local regulations for container disposal

**Special Precautions:**

- Prevent contamination of soil, groundwater, and surface water
- Do not discharge to sewers without proper treatment
- Consider recycling or recovery where economically feasible

**Regulatory Information:**

- Check federal, state, and local regulations before disposal
- May be subject to hazardous waste regulations depending on use
- Waste characterization and proper classification required

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