SULFOLANE

SFL

CAUTIONARY RESPONSE INFORMATION

Common Synonyms
Sulfolane-W
Tetrahydrothiophene-1,1-Dioxide
Tetramethylene sulfone

Oily liquid | Colorless | Weak oily odor

Solidifies and sinks and mixes with water. Freezing point is 79°F.

Call fire department.
Avoid contact with liquid.
Notify local health and pollution control agencies.
Protect water intakes.

Fire

Combustible.
POISONOUS GASES ARE PRODUCED IN FIRE.
Wear goggles and self-contained breathing apparatus.
Extinguish with water, foam, dry chemical, or carbon dioxide.

Exposure

CALL FOR MEDICAL AID.

LIQUID
Not irritating to skin.
Irritating to eyes.
Harmful if swallowed.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk, and have victim induce vomiting.
IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.

Water Pollution

Effect of low concentrations on aquatic life is unknown.
May be dangerous if it enters water intakes.
Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
Stop discharge
Collection Systems: Pump
Do not burn

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 39; Sulfolane
2.2 Formula: $CH_2CH_2CH_2CH_2SO_2$
2.3 IMO/UN Designation: Not listed
2.4 DOT ID No.: Not listed
2.5 CAS Registry No.: 126-33-0
2.6 NAERG Guide No.: Not listed
2.7 Standard Industrial Trade Classification: 51579

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Goggles or face shield; rubber gloves.
3.2 Symptoms Following Exposure: Very mildly irritating to the eyes.
3.3 Treatment of Exposure: INGESTION: induce vomiting. SKIN OR EYE CONTACT: flush with water.
3.4 TLV-TWA: Not listed.
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Grade 2; LD_{50} = 0.5 to 5 g/kg (rat, mouse)
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Currently not available
3.10 Vapor (Gas) Irritant Characteristics: Vapors are nonirritating to the eyes and throat.
3.11 Liquid or Solid Characteristics: No appreciable hazard. Practically harmless to the skin.
3.12 Odor Threshold: Currently not available
3.13 IDLH Value: Not listed.
3.14 OSHA PEL-TWA: Not listed.
3.15 OSHA PEL-STEL: Not listed.
3.16 OSHA PEL-Ceiling: Not listed.
3.17 EPA AEGL: Not listed

4. FIRE HAZARDS

4.1 Flash Point: 330°F C.C.
4.2 Flammable Limits in Air: Currently not available
4.3 Fire Extinguishing Agents: Water, foam, dry chemicals, or carbon dioxide
4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent
4.5 Special Hazards of Combustion Products: Toxic, irritating gases may be generated in fires.
4.6 Behavior in Fire: Not pertinent
4.7 Auto Ignition Temperature: Currently not available
4.8 Electrical Hazards: Not pertinent
4.9 Burning Rate: Currently not available
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: 28.6 (calc.)
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): 9.0 (calc.)
4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed

5. CHEMICAL REACTIVITY

5.1 Reactivity with Water: No reaction
5.2 Reactivity with Common Materials: No reaction
5.3 Stability During Transport: Stable
5.4 Neutralizing Agents for Acids and Caustics: Not pertinent
5.5 Polymerization: Currently not available
5.6 Inhibitor of Polymerization: Not pertinent

6. WATER POLLUTION

6.1 Aquatic Toxicity: Currently not available
6.2 Waterfowl Toxicity: Currently not available
6.3 Biological Oxygen Demand (BOD): Currently not available
6.4 Food Chain Concentration Potential: None
6.5 GESAMP Hazard Profile: Not listed

7. SHIPPING INFORMATION

7.1 Grades of Purity: Anhydrous: 99+%; standard water blend: 97% plus 3% water
7.2 Storage Temperature: Ambient
7.3 Inert Atmosphere: No requirement
7.4 Venting: Open (flame arrester)
7.5 IMO Pollution Category: Currently not available
7.6 Ship Type: Currently not available
7.7 Barge Hull Type: Currently not available

8. HAZARD CLASSIFICATIONS

8.1 49 CFR Category: Not listed
8.2 49 CFR Class: Not pertinent
8.3 49 CFR Package Group: Not listed.
8.4 Marine Pollutant: No
8.5 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue).....	2
Flammability (Red).....	1
Instability (Yellow).....	0

8.6 EPA Reportable Quantity: Not listed.
8.7 EPA Pollution Category: Not listed.
8.8 RCRA Waste Number: Not listed
8.9 EPA FWPCA List: Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

9.1 Physical State at 15° C and 1 atm: Solid
9.2 Molecular Weight: 120.17
9.3 Boiling Point at 1 atm: 545°F = 285°C = 558°K
9.4 Freezing Point: 79°F = 26°C = 299°K
9.5 Critical Temperature: Not pertinent
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 1.26 at 30°C (liquid)
9.8 Liquid Surface Tension: Not pertinent
9.9 Liquid Water Interfacial Tension: Not pertinent
9.10 Vapor (Gas) Specific Gravity: Not pertinent
9.11 Ratio of Specific Heats of Vapor (Gas): Not pertinent
9.12 Latent Heat of Vaporization: Not pertinent
9.13 Heat of Combustion: (est.) –9,500 Btu/lb = –5,300 cal/g = -220×10^5 J/kg
9.14 Heat of Decomposition: Not pertinent
9.15 Heat of Solution: (est.) –22 Btu/lb = –12 cal/g = -0.5×10^5 J/kg
9.16 Heat of Polymerization: Not pertinent
9.17 Heat of Fusion: Currently not available
9.18 Limiting Value: Currently not available
9.19 Reid Vapor Pressure: Currently not available

NOTES

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
82	78.580	80	0.356		N		N
84	78.549	100	0.363		O		O
86	78.530	120	0.369		T		T
88	78.500	140	0.376				
90	78.469	160	0.383		P		P
92	78.440	180	0.389		E		E
94	78.419	200	0.396		R		R
96	78.389	220	0.403		T		T
98	78.360	240	0.409		I		I
100	78.330	260	0.416		N		N
102	78.299	280	0.423		E		E
104	78.280	300	0.429		N		N
106	78.250	320	0.436		T		T
108	78.219	340	0.443				
110	78.190	360	0.449				
112	78.169	380	0.456				
114	78.139						
116	78.110						
118	78.080						
120	78.059						
122	78.030						
124	78.000						
126	77.969						
128	77.940						
130	77.919						
132	77.889						

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
	M	220	0.038	220	0.00062		N
	I	230	0.049	230	0.00080		O
	S	240	0.064	240	0.00103		T
	C	250	0.083	250	0.00131		
	I	260	0.106	260	0.00165		P
	B	270	0.135	270	0.00207		E
	L	280	0.171	280	0.00259		R
	E	290	0.215	290	0.00321		T
		300	0.269	300	0.00396		I
		310	0.334	310	0.00486		N
		320	0.413	320	0.00592		E
		330	0.507	330	0.00719		N
		340	0.620	340	0.00868		T
		350	0.754	350	0.01043		
		360	0.913	360	0.01247		
		370	1.101	370	0.01485		
		380	1.321	380	0.01761		
		390	1.578	390	0.02079		
		400	1.877	400	0.02444		
		410	2.224	410	0.02863		
		420	2.626	420	0.03342		
		430	3.088	430	0.03886		
		440	3.619	440	0.04503		
		450	4.226	450	0.05201		
		460	4.919	460	0.05987		
		470	5.706	470	0.06871		