ETHYL NITRITE

ETN

CAUTIONARY RESPONSE INFORMATION

Common Synonyms
Nitrous ether
Spirit of ether nitrite
Sweet spirit of nitre

Liquid Colorless to light yellow Pleasant odor

Floats on water. May boil on water. Boiling point is 63°F.

Evacuate.
Keep people away.
Avoid inhalation.
Shut off ignition sources. Call fire department.
Notify local health and pollution control agencies.

Fire

FLAMMABLE.
POISONOUS GASES ARE PRODUCED IN FIRE.
Containers may explode in fire.
Flashback along vapor trail may occur.
Vapor may explode if ignited in an enclosed area.
Wear goggles and self-contained breathing apparatus.
Combat fires from safe distance or protected location.
Extinguish with water, dry chemicals, foam, or carbon dioxide.
Cool exposed containers with water.

Exposure

Call for medical aid.

VAPOR
If inhaled will cause headache, dizziness, or loss of consciousness.
Move victim to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
If swallowed will cause headache, or loss of consciousness.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.

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

Stop discharge
Do not burn

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
2.2 Formula: C_2H_5ONO
2.3 IMO/UN Designation: 3.1/1194
2.4 DOT ID No.: 1194
2.5 CAS Registry No.: 109-95-5
2.6 NAERG Guide No.: 131
2.7 Standard Industrial Trade Classification: 51140

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Self-contained breathing apparatus; goggles or face shield; rubber gloves.
3.2 Symptoms Following Exposure: Inhalation or ingestion causes headache, increased pulse rate, decreased blood pressure, and unconsciousness. Contact with liquid irritates eyes and skin.
3.3 Treatment of Exposure: INHALATION: remove victim from exposure; if breathing has stopped, give artificial respiration; call physician. EYES: flush with water for at least 15 min.; get medical attention if irritation persists. SKIN: flush with water, wash with soap and water. INGESTION: do NOT induce vomiting; call physician.
3.4 TLV-TWA: Not listed.
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Currently not available
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Currently not available
3.10 Vapor (Gas) Irritant Characteristics: Currently not available
3.11 Liquid or Solid Characteristics: Currently not available
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: –31°F C.C.
4.2 Flammable Limits in Air: 3%->50%
4.3 Fire Extinguishing Agents: Water, dry chemical, foam, carbon dioxide
4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent
4.5 Special Hazards of Combustion Products: Toxic oxides of nitrogen are generated.
4.6 Behavior in Fire: Vapors are heavier than air and may travel a considerable distance to a source of ignition and flash back; can decompose violently above 194°F; containers may explode in a fire.
4.7 Auto Ignition Temperature: 194°F
4.8 Electrical Hazards: Currently not available
4.9 Burning Rate: 2.6 mm/min.
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: 15.5 (calc.)
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): 5.5 (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 if stored in a cool place and not exposed to strong light.
5.4 Neutralizing Agents for Acids and Caustics: Not pertinent
5.5 Polymerization: Not pertinent
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:
Bioaccumulation: 0
Damage to living resources: -
Human Oral hazard: -
Human Contact hazard: II
Reduction of amenities: XX

7. SHIPPING INFORMATION

7.1 Grades of Purity: Often shipped as a 85-92% (by volume) solution in ethyl alcohol. Properties very similar.
7.2 Storage Temperature: Cool ambient
7.3 Inert Atmosphere: No requirement
7.4 Venting: Safety relief
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: Flammable liquid
8.2 49 CFR Class: 3
8.3 49 CFR Package Group: I
8.4 Marine Pollutant: No
8.5 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue).....	2
Flammability (Red).....	4
Instability (Yellow).....	4

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: Liquid
9.2 Molecular Weight: 75.1
9.3 Boiling Point at 1 atm: 63°F = 17°C = 290°K
9.4 Freezing Point: –58°F = –50°C = 223°K
9.5 Critical Temperature: Not pertinent
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 0.900 at 15°C (liquid)
9.8 Liquid Surface Tension: (est.) 30 dynes/cm = 0.030 N/m at 20°C
9.9 Liquid Water Interfacial Tension: (est.) 35 dynes/cm = 0.035 N/m at 20°C
9.10 Vapor (Gas) Specific Gravity: 2.6
9.11 Ratio of Specific Heats of Vapor (Gas): Currently not available
9.12 Latent Heat of Vaporization: 229 Btu/lb = 127 cal/g = 5.32 X 10^5 J/kg
9.13 Heat of Combustion: (est.) –7,800 Btu/lb = –4,300 cal/g = –180 X 10^5 J/kg
9.14 Heat of Decomposition: Not pertinent
9.15 Heat of Solution: Not pertinent
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
34	57.050	51	0.501	51	1.129	51	4.064
36	56.980	52	0.501	52	1.129	52	4.005
38	56.910	53	0.502	53	1.129	53	3.948
40	56.840	54	0.502	54	1.129	54	3.892
42	56.770	55	0.503	55	1.129	55	3.836
44	56.700	56	0.503	56	1.129	56	3.782
46	56.630	57	0.504	57	1.129	57	3.729
48	56.560	58	0.504	58	1.129	58	3.677
50	56.491	59	0.505	59	1.129	59	3.625
52	56.420	60	0.506	60	1.129	60	3.575
54	56.350	61	0.506	61	1.129	61	3.525
56	56.280	62	0.507	62	1.129	62	3.476
58	56.210	63	0.507	63	1.129	63	3.428
60	56.150						
62	56.080						

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
	I	34	5.598	34	0.07933		N
	N	36	6.007	36	0.08479		O
	S	38	6.443	38	0.09057		T
	O	40	6.906	40	0.09669		
	L	42	7.398	42	0.10320		P
	U	44	7.921	44	0.11000		E
	B	46	8.477	46	0.11730		R
	L	48	9.066	48	0.12490		T
	E	50	9.691	50	0.13300		I
		52	10.350	52	0.14160		N
		54	11.060	54	0.15060		E
		56	11.800	56	0.16010		N
		58	12.590	58	0.17020		T
		60	13.420	60	0.18070		
		62	14.310	62	0.19190		
		64	15.240	64	0.20360		
		66	16.230	66	0.21600		
		68	17.270	68	0.22890		