

TERT-BUTYL HYDROPEROXIDE

BHP

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Cadox TBH		Watery liquid	Colorless	Odorless
Floats and mixes slowly with water.				
<p>Restrict access. Evacuate area in case of large discharge. Shut off ignition sources and call fire department. Stay upwind and flood spill area with water. Avoid contact with liquid. Notify local health and pollution control agencies. Protect water intakes.</p>				
Fire	<p>FLAMMABLE. May explode if subjected to heat, flame, or shock. May cause fire and explode on contact with combustibles. Vapor may explode if ignited in an enclosed area. Evacuate surrounding area. Combat fires from safe distance or protected location. Flood discharge area with water. Extinguish with dry chemical, foam or carbon dioxide. Cool exposed containers with water.</p>			
Exposure	<p>CALL FOR MEDICAL AID.</p> <p>VAPOR Irritating to eyes, nose and throat. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>LIQUID Irritating to skin and eyes. Harmful if swallowed. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. 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.</p>			
Water Pollution	<p>Effect of low concentrations on aquatic life is unknown. May be dangerous if it enters water intakes. Notify local health and pollution control officials. Notify operators of nearby water intakes.</p>			

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
Stop discharge
Contain
Collection Systems: Skin
Salvage waterfowl

2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** Not listed.
2.2 **Formula:** (CH₃)₃C O OH
2.3 **IMO/UN Designation:** 5.2/1949
2.4 **DOT ID No.:** Not listed
2.5 **CAS Registry No.:** 75-91-2
2.6 **NAERG Guide No.:** 147
2.7 **Standard Industrial Trade Classification:** 51699

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Goggles, well-fitting gloves, barrier creams
3.2 **Symptoms Following Exposure:** Liquid causes severe burns of skin and eyes.
3.3 **Treatment of Exposure:** INGESTION: induce vomiting and follow with gastric lavage. INHALATION: remove individual from contaminated atmosphere; give artificial respiration and oxygen if needed. SKIN, EYE, AND MUCOUS MEMBRANE CONTACT: flood affected tissues 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 3; LD₅₀ = 50 to 500 mg/kg
3.8 **Toxicity by Inhalation:** Currently not available.
3.9 **Chronic Toxicity:** Currently not available
3.10 **Vapor (Gas) Irritant Characteristics:** Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary.
3.11 **Liquid or Solid Characteristics:** Powerful irritant of skin and eyes.
3.12 **Odor Threshold:** Odorless
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:** 100°F O.C.
4.2 **Flammable Limits in Air:** Not pertinent
4.3 **Fire Extinguishing Agents:** Dry chemical, foam or carbon dioxide.
4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
4.5 **Special Hazards of Combustion Products:** Not pertinent
4.6 **Behavior in Fire:** May explode in fire
4.7 **Auto Ignition Temperature:** Not pertinent
4.8 **Electrical Hazards:** Not pertinent
4.9 **Burning Rate:** Not pertinent
4.10 **Adiabatic Flame Temperature:** Currently not available
4.11 **Stoichiometric Air to Fuel Ratio:** 26.2 (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:** Reacts vigorously with easily oxidized materials, including wood and some metals.
5.3 **Stability During Transport:** Shock and heat-sensitive; self-accelerating decomposition at 200°F.
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:** Not listed

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 70-90%
7.2 **Storage Temperature:** 65-85°F
7.3 **Inert Atmosphere:** Currently not available
7.4 **Venting:** Currently not available
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:** Forbidden
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)..... | 1 |
| Flammability (Red)..... | 4 |
| Instability (Yellow)..... | 4 |
| Special (White)..... | OX |
- 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:** 90.12
9.3 **Boiling Point at 1 atm:** Decomposes
9.4 **Freezing Point:** -31°F = -35°C = 238°K
9.5 **Critical Temperature:** Not pertinent
9.6 **Critical Pressure:** Not pertinent
9.7 **Specific Gravity:** 0.880 at 25°C (liquid)
9.8 **Liquid Surface Tension:** Currently not available
9.9 **Liquid Water Interfacial Tension:** Currently not available
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.) -13,000 Btu/lb = -7200 cal/g = -300 X 10⁵ J/kg
9.14 **Heat of Decomposition:** -675 Btu/lb = -375 cal/g = -15.7 X 10⁵ J/kg
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
52	55.800	85	0.585	32	1.179	77	7.000
54	55.730	90	0.591	34	1.179		
56	55.660	95	0.597	36	1.179		
58	55.590	100	0.603	38	1.179		
60	55.520	105	0.610	40	1.179		
62	55.450	110	0.616	42	1.179		
64	55.380	115	0.622	44	1.179		
66	55.310	120	0.628	46	1.179		
68	55.240	125	0.635	48	1.179		
70	55.170	130	0.641	50	1.179		
72	55.100	135	0.647	52	1.179		
74	55.040	140	0.653	54	1.179		
76	54.970	145	0.660	56	1.179		
78	54.900	150	0.666	58	1.179		
80	54.830			60	1.179		
82	54.760			62	1.179		
84	54.690			64	1.179		
86	54.620			66	1.179		
				68	1.179		
				70	1.179		

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
68	8.000	32	0.019	32	0.00032		N
		34	0.021	34	0.00036		O
		36	0.024	36	0.00041		T
		38	0.028	38	0.00047		
		40	0.032	40	0.00053		P
		42	0.036	42	0.00061		E
		44	0.041	44	0.00069		R
		46	0.047	46	0.00078		T
		48	0.054	48	0.00089		I
		50	0.061	50	0.00100		N
		52	0.069	52	0.00113		E
		54	0.078	54	0.00128		N
		56	0.089	56	0.00145		T
		58	0.101	58	0.00163		
		60	0.114	60	0.00184		
		62	0.129	62	0.00207		
		64	0.145	64	0.00233		
		66	0.164	66	0.00262		
		68	0.185	68	0.00294		
		70	0.208	70	0.00330		