

NONYLPHENOL

NNP

CAUTIONARY RESPONSE INFORMATION

Common Synonyms	Thick liquid Floats on water.	Light yellow, straw color Medicinal odor
<p>Keep people away. Avoid contact with liquid. Wear rubber overclothing (including gloves). Call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>		
Fire	Combustible. Extinguish with dry chemical, alcohol foam, or carbon dioxide. Water may be ineffective on fire. Cool exposed containers with water.	
Exposure	CALL FOR MEDICAL AID. LIQUID Will burn 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.	
Water Pollution	Effect of low concentrations on aquatic life is unknown. Fouling to shoreline. 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
- Contain
- Collection Systems: Skim
- Chemical and Physical Treatment:
- Absorb
- Clean shore line
- Salvage waterfront

2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: 21; Phenol, cresol
 - 2.2 Formula: p-HOC₆H₄(CH₂)₃CH₃
 - 2.3 IMO/UN Designation: Not listed
 - 2.4 DOT ID No.: Not listed
 - 2.5 CAS Registry No.: 25154-52-3
 - 2.6 NAERG Guide No.: Not listed
 - 2.7 Standard Industrial Trade Classification: 542441

3. HEALTH HAZARDS

- 3.1 Personal Protective Equipment:** Rubber gloves and splash-proof goggles.

3.2 Symptoms Following Exposure: Moderately toxic if swallowed. Severely irritating to skin and eyes.

3.3 Treatment of Exposure: EYES: wash with water for 15 min. and get medical attention. SKIN: wash with soap and water.

3.4 TLV-TWA: Not listed.

3.5 TLV-TEL: Not listed.

3.6 TLV-Ceiling: Not listed.

3.7 Toxicity by Ingestion: Grade 2; $LD_{50} = 0.5$ to 5 g/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: Causes smarting of the skin and first-degree burns on short exposure; may cause secondary burns on long exposure.

3.12 Odor Threshold: Currently not available

3.13 IDLH Value: Not listed.

3.14 OSHA PEL-TWA: Not listed.

3.15 OSHA PEL-TEL: Not listed.

3.16 OSHA PEL-Ceiling: Not listed.

3.17 EPA A EGL: Not listed

4. FIRE HAZARDS

- 4.1 **Flash Point:** 300°F O.C. 285°F C.C.
 - 4.2 **Flammable Limits in Air:** Approx. 1% (calc. LEL)
 - 4.3 **Fire Extinguishing Agents:** Alcohol foam, dry chemical, or carbon dioxide
 - 4.4 **Fire Extinguishing Agents Not to Be Used:** Water or foam may cause frothing.
 - 4.5 **Special Hazards of Combustion Products:** Not pertinent
 - 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 **Stoichiometric Air to Fuel Ratio:** 97.6 (calc.)
 - 4.12 **Flame Temperature:** Currently not available
 - 4.13 **Combustion Molar Ratio (Reactant to Product):** 27.0 (calc.)
 - 4.14 **Minimum Oxygen Concentration for Combustion (MOC):** Not listed

7. SHIPPING INFORMATION

- 7.1 Grades of Purity:** 90% para-isomer, plus 4% ortho-isomer and 5% 2, 4-dinonylphenol

7.2 Storage Temperature: Ambient

7.3 Inert Atmosphere: No requirement

7.4 Venting: Open (flame arrester)

7.5 IMO Pollution Category: A

7.6 Ship Type: 2

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: Yes

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 FWCMPA 1 list: Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 Physical State at 15°C and 1 atm: Liquid
 - 9.2 Molecular Weight: 220.36
 - 9.3 Boiling Point at 1 atm: 579°F = 304°C = 577°K
 - 9.4 Freezing Point: Not pertinent
 - 9.5 Critical Temperature: 878.0°F = 470°C = 743.2°K
 - 9.6 Critical Pressure: Not pertinent
 - 9.7 Specific Gravity: 0.9494 at 25°C (liquid)
 - 9.8 Liquid Surface Tension: (est.) 30 dynes/cm = 0.03 N/m at 20°C
 - 9.9 Liquid Water Interfacial Tension: (est.) 30 dynes/cm = 0.03 N/m at 20°C
 - 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.) -17,500 Btu/lb = -9730 cal/g = -407 X 10³ 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: Low

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
65	59.360	85	0.486	50	1.040	80	1513.000
70	59.240	90	0.497	52	1.040	85	1274.000
75	59.130	95	0.508	54	1.040	90	1076.000
80	59.020	100	0.519	56	1.040	95	912.000
85	58.900	105	0.529	58	1.040	100	775.099
90	58.790	110	0.540	60	1.040	105	660.599
95	58.670	115	0.551	62	1.040	110	564.699
100	58.560	120	0.562	64	1.040	115	484.000
105	58.440	125	0.573	66	1.040	120	415.899
110	58.330	130	0.583	68	1.040	125	358.299
115	58.210	135	0.594	70	1.040	130	309.500
120	58.090	140	0.605	72	1.040	135	268.000
125	57.970	145	0.616	74	1.040	140	232.599
130	57.850	150	0.626	76	1.040	145	202.400
				78	1.040	150	176.500
				80	1.040	155	154.199
				82	1.040	160	135.099
				84	1.040	165	118.599
						170	104.299
						175	91.910

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		340	0.255	340	0.00654		N
N		360	0.404	360	0.01013		O
S		380	0.623	380	0.01524		T
O		400	0.935	400	0.02233		
L		420	1.370	420	0.03197		P
U		440	1.962	440	0.04477		E
B		460	2.755	460	0.06148		R
L		480	3.795	480	0.08291		T
E		500	5.141	500	0.11000		I
		520	6.854	520	0.14360		N
		540	9.005	540	0.18490		E
		560	11.670	560	0.23500		R
		580	14.940	580	0.29510		T
		600	18.910	600	0.36630		I
		620	23.670	620	0.45000		N
		640	29.330	640	0.54750		E
		660	36.000	660	0.66010		R