O-DINITROBENZENE

DNO

CAUTIONARY RESPONSE INFORMATION

Common Synonyms	Solid	Colorless to yellow
1,2-Dinitrobenzene o-Dinitrobenzol	Sinks and slowly mixes with water.	

Keep people away. AVOID CONTACT WITH SOLID AND DUST.
Avoid inhalation.
Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves).
Shut off ignition sources and call fire department.
Evacuate area in case of large discharge.
Protect water intakes.
Notify local health and pollution control agencies.
Protect water intakes.

Fire	Combustible. MAY EXPLODE IF SUBJECTED TO HEAT, SHOCK, OR FRICTION. POISONOUS GAS IS PRODUCED WHEN HEATED. Evacuate surrounding area. Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves). Combat fires from safe distance or protected location; Extinguish with water, carbon dioxide, dry chemical, or carbon tetrachloride.
Exposure	CALL FOR MEDICAL AID. DUST. POISONOUS IF INHALED, OR IF SKIN IS EXPOSED. Move to fresh air. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. If breathing has stopped, give artificial respiration. SOLID. POISONOUS 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.
Water Pollution	HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS. 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: Pump; Dredge
Do not burn

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
2.2 Formula: $C_6H_4(NO_2)_2$
2.3 IMO/UN Designation: 6.1/1597
2.4 DOT ID No.: 1597
2.5 CAS Registry No.: 528-29-0
2.6 NAERG Guide No.: 152
2.7 Standard Industrial Trade Classification: 51140

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Full protective gastight outerwear and self-contained breathing apparatus.
3.2 Symptoms Following Exposure: INHALATION, INGESTION, OR SKIN ABSORPTION: Headache, vertigo and vomiting followed by exhaustion, numbness of the legs, staggering and collapse. Intense methemoglobinenia may lead to asphyxia severe enough to injure the CNS. EYES: Irritation. SKIN: Stains skin yellow.
3.3 Treatment of Exposure: Call a doctor. INHALATION: Remove from contaminated area. If having breathing difficulty, give oxygen. If breathing stops give artificial respiration. EYES: Flush with running water. SKIN: Remove contaminated clothing and wash with soap and water. INGESTION: Gastric lavage followed by saline catharsis.
3.4 TLV-TWA: 0.15 ppm
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Grade 4; LD_{50} < 50 mg/kg
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Weight loss, anemia, weakness, irritability, and liver damage may occur. Skin may be discolored.
3.10 Vapor (Gas) Irritant Characteristics: Not pertinent
3.11 Liquid or Solid Characteristics: Currently not available
3.12 Odor Threshold: Currently not available
3.13 IDLH Value: 50 mg/m^3
3.14 OSHA PEL-TWA: 1 mg/m^3
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: 302°F C.C.
4.2 Flammable Limits in Air: Not pertinent
4.3 Fire Extinguishing Agents: Water, CO_2, or dry chemical.
4.4 Fire Extinguishing Agents Not to Be Used: Currently not available
4.5 Special Hazards of Combustion Products: Emits highly toxic fumes of oxides of nitrogen. May explode.
4.6 Behavior in Fire: Severe explosion hazard when exposed to heat or flame, or when shocked.
4.7 Auto Ignition Temperature: Currently not available
4.8 Electrical Hazards: Currently not available
4.9 Burning Rate: Not pertinent
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: 33.3 (calc.)
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): 10.0 (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: Can react vigorously with oxidizing materials.
5.3 Stability During Transport: May explode when shocked or heated under confinement.
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: 8-10 ppm/6 hr/minnow/minimum lethal dose/hard water/23°C
6.2 Waterfowl Toxicity: Currently not available
6.3 Biological Oxygen Demand (BOD): Currently not available
6.4 Food Chain Concentration Potential: May have accumulative effects.
6.5 GESAMP Hazard Profile: Not listed

7. SHIPPING INFORMATION

7.1 Grades of Purity: 100%
7.2 Storage Temperature: Cool
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: Poison
8.2 49 CFR Class: 6.1
8.3 49 CFR Package Group: II
8.4 Marine Pollutant: No
8.5 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue).....	3
Flammability (Red).....	1
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: Solid
9.2 Molecular Weight: 168.11
9.3 Boiling Point at 1 atm: 606°F = 319°C = 592.2°K
9.4 Freezing Point: 244.4°F = 118°C = 391.2°K
9.5 Critical Temperature: Not pertinent
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 1.31 at 20°C
9.8 Liquid Surface Tension: Not pertinent
9.9 Liquid Water Interfacial Tension: Not pertinent
9.10 Vapor (Gas) Specific Gravity: 5.8
9.11 Ratio of Specific Heats of Vapor (Gas): Not pertinent
9.12 Latent Heat of Vaporization: 145.8 Btu/lb = 81.0 cal/g = 3.39 X 10^5 J/kg = –167 X 10^5 J/kg
9.13 Heat of Combustion: –7187 Btu/lb = –3993 cal/g = –167 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: 32.25 cal/g
9.18 Limiting Value: Currently not available
9.19 Reid Vapor Pressure: Currently not available

NOTES

O-DINITROBENZENE

DNO

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
	NOT PERTINENT		NOT PERTINENT		NOT PERTINENT		NOT PERTINENT

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
	INSOLUBLE		NOT PERTINENT		NOT PERTINENT		NOT PERTINENT