

# 2,4-DINITROPHENOL

DNP

## CAUTIONARY RESPONSE INFORMATION

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| <b>Common Synonyms</b><br>Aldifen<br>alpha-Dinitrophenol<br>1-Hydroxy-2,4-dinitro-benzene                                                                                                                                                                                                                                                                               | Solid crystal<br><br>Sinks in water.                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Yellow<br><br> | Sweet, musty<br>odor |
| Keep people away. <b>AVOID CONTACT WITH SOLID AND DUST.</b><br>Avoid inhalation.<br>Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves).<br>Evacuate area in case of large discharges.<br>Shut off ignition sources and call fire department.<br>Notify local health and pollution control agencies.<br>Protect water intakes. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |                      |
| <b>Fire</b>                                                                                                                                                                                                                                                                                                                                                             | Combustible<br>May explode if subjected to heat or flame.<br><b>POISONOUS GAS IS PRODUCED WHEN HEATED.</b><br>Evacuate surrounding area.<br>Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves).<br>Combat fires from safe distance or protected location.                                                                                                                                                                                                |                |                      |
| <b>Exposure</b>                                                                                                                                                                                                                                                                                                                                                         | CALL FOR MEDICAL AID.<br>DUST<br><b>POISONOUS IF INHALED OR IF SKIN IS EXPOSED.</b><br>Move to fresh air.<br>If breathing has stopped, give artificial respiration.<br>If breathing is difficult, give oxygen.<br><br>SOLID<br><b>POISONOUS IF SWALLOWED.</b><br>Remove contaminated clothing and shoes.<br>Flush affected areas with plenty of water.<br>IF IN EYES, hold eyelids open and flush with plenty of water.<br>IF SWALLOWED, and victim is CONSCIOUS, have victim drink water or milk. |                |                      |
| <b>Water Pollution</b>                                                                                                                                                                                                                                                                                                                                                  | HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.<br>May be dangerous if it enters water intakes.<br>Notify local health and wildlife officials.<br>Notify operators of nearby water intakes.                                                                                                                                                                                                                                                                                                    |                |                      |

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| <b>1. CORRECTIVE RESPONSE ACTIONS</b><br>Stop discharge<br>Contain<br>Collection Systems: Dredge<br>Do not burn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>2. CHEMICAL DESIGNATIONS</b><br>2.1 CG Compatibility Group: Not listed.<br>2.2 Formula: $\text{HO}C_6\text{H}_3(\text{NO}_2)_2$ -2,4<br>2.3 IMO/UN Designation: 1.0/0076<br>2.4 DOT ID No.: 0076<br>2.5 CAS Registry No.: 51-28-5<br>2.6 NAERG Guide No.: Not listed.<br>2.7 Standard Industrial Trade Classification: 51140 |
| <b>3. HEALTH HAZARDS</b><br>3.1 <b>Personal Protective Equipment:</b> Self-contained breathing apparatus; butyl rubber gloves; goggles; lab coat; protective shoes.<br>3.2 <b>Symptoms Following Exposure:</b> Liver damage, metabolic stimulant, dermatitis, dilation of pupils.<br>3.3 <b>Treatment of Exposure:</b> Remove victim from contaminated area and wash exposed skin with soap and water. Administer oxygen if respiratory problems develop. Refer to a doctor.<br>3.4 <b>TLV-TWA:</b> Not listed.<br>3.5 <b>TLV-STEL:</b> Not listed.<br>3.6 <b>TLV-Ceiling:</b> Not listed.<br>3.7 <b>Toxicity by Ingestion:</b> Grade 4; LD <sub>50</sub> below 50 mg/kg<br>3.8 <b>Toxicity by Inhalation:</b> Currently not available.<br>3.9 <b>Chronic Toxicity:</b> Produces clouding of lens of eye (cataracts) in animals and humans, birth defects in chick embryos.<br>3.10 <b>Vapor (Gas) Irritant Characteristics:</b> Not pertinent<br>3.11 <b>Liquid or Solid Characteristics:</b> Causes smarting of the skin and first-degree burns on short exposure; may cause second-degree burns on long exposure.<br>3.12 <b>Odor Threshold:</b> Currently not available<br>3.13 <b>IDLH Value:</b> Not listed.<br>3.14 <b>OSHA PEL-TWA:</b> Not listed.<br>3.15 <b>OSHA PEL-STEL:</b> Not listed.<br>3.16 <b>OSHA PEL-Ceiling:</b> Not listed.<br>3.17 <b>EPA AEGL:</b> Not listed |                                                                                                                                                                                                                                                                                                                                 |

## 4. FIRE HAZARDS

- 4.1 **Flash Point:** Currently not available  
4.2 **Flammable Limits in Air:** Not pertinent  
4.3 **Fire Extinguishing Agents:** Water, dry chemical, carbon dioxide, foam  
4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent  
4.5 **Special Hazards of Combustion Products:** Vapors are toxic  
4.6 **Behavior in Fire:** Can detonate or explode when heated under confinement  
4.7 **Auto Ignition Temperature:** Currently not available  
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:** 30.9 (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:** Reacts with oxidizing materials and combustibles.  
5.3 **Stability During Transport:** May detonate when 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:** 200 ppm/0.3 hr/minnow/died/fresh water  
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:** Currently not available  
7.2 **Storage Temperature:** Ambient  
7.3 **Inert Atmosphere:** No requirement  
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:** Explosive  
8.2 **49 CFR Class:** 1-1D  
8.3 **49 CFR Package Group:** II  
8.4 **Marine Pollutant:** Yes  
8.5 **NFPA Hazard Classification:** Not listed  
8.6 **EPA Reportable Quantity:** 10 pounds  
8.7 **EPA Pollution Category:** A  
8.8 **RCRA Waste Number:** P084  
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:** 184.1  
9.3 **Boiling Point at 1 atm:** Not pertinent  
9.4 **Freezing Point:** 235°F = 113°C = 386°K  
9.5 **Critical Temperature:** Not pertinent  
9.6 **Critical Pressure:** Not pertinent  
9.7 **Specific Gravity:** 1.68 at 20°C (solid)  
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:** Not pertinent  
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<br>SATURATED LIQUID DENSITY |                                                  | 9.21<br>LIQUID HEAT CAPACITY |                                                  | 9.22<br>LIQUID THERMAL CONDUCTIVITY |                                                     | 9.23<br>LIQUID VISCOSITY   |                                                  |
|----------------------------------|--------------------------------------------------|------------------------------|--------------------------------------------------|-------------------------------------|-----------------------------------------------------|----------------------------|--------------------------------------------------|
| Temperature<br>(degrees F)       | Pounds per cubic foot                            | Temperature<br>(degrees F)   | British thermal unit per<br>pound-F              | Temperature<br>(degrees F)          | British thermal unit inch<br>per hour-square foot-F | Temperature<br>(degrees F) | Centipoise                                       |
|                                  | NOT<br>P<br>E<br>R<br>T<br>I<br>N<br>E<br>N<br>T |                              | NOT<br>P<br>E<br>R<br>T<br>I<br>N<br>E<br>N<br>T |                                     | NOT<br>P<br>E<br>R<br>T<br>I<br>N<br>E<br>N<br>T    |                            | NOT<br>P<br>E<br>R<br>T<br>I<br>N<br>E<br>N<br>T |

| 9.24<br>SOLUBILITY IN WATER |                                                | 9.25<br>SATURATED VAPOR PRESSURE |                                                  | 9.26<br>SATURATED VAPOR DENSITY |                                                  | 9.27<br>IDEAL GAS HEAT CAPACITY |                                                  |
|-----------------------------|------------------------------------------------|----------------------------------|--------------------------------------------------|---------------------------------|--------------------------------------------------|---------------------------------|--------------------------------------------------|
| Temperature<br>(degrees F)  | Pounds per 100 pounds<br>of water              | Temperature<br>(degrees F)       | Pounds per square inch                           | Temperature<br>(degrees F)      | Pounds per cubic foot                            | Temperature<br>(degrees F)      | British thermal unit per<br>pound-F              |
|                             | I<br>N<br>S<br>O<br>L<br>U<br>B<br>I<br>L<br>E |                                  | NOT<br>P<br>E<br>R<br>T<br>I<br>N<br>E<br>N<br>T |                                 | NOT<br>P<br>E<br>R<br>T<br>I<br>N<br>E<br>N<br>T |                                 | NOT<br>P<br>E<br>R<br>T<br>I<br>N<br>E<br>N<br>T |