

Material Safety Data Sheet

2,4-Dinitrophenol, moistened with up to 35% water

ACC# 65133

Section 1 - Chemical Product and Company Identification

MSDS Name: 2,4-Dinitrophenol, moistened with up to 35% water

Catalog Numbers: AC117040010, AC117040050, AC117042500, NC9324637, NC9325104, NC9327160, NC9383724, XXAC11704-.010, XXAC11704-1KG, XXAC11704-30KG

Synonyms: alpha-Dinitrophenol; Dinofan; 1-Hydroxy-2,4-dinitrobenzene; Solfo Black.

Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
51-28-5	2,4-Dinitrophenol	>65	200-087-7
7732-18-5	Water	<35	231-791-2

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: yellow to brown.

Danger! Explosive when dry. Flammable solid. May be fatal if inhaled or swallowed. Harmful if absorbed through the skin. Causes eye, skin, and respiratory tract irritation. Marine pollutant.

Target Organs: Kidneys, heart, central nervous system, liver, reproductive system.

Potential Health Effects

Eye: Causes eye irritation. A worker accidentally sprayed dinitrophenol into his eye. Chemical conjunctivitis developed and it was treated with Blinex, Neosporin ophthalmic ointment, and an eye patch. His vision was impaired for one month.

Skin: Causes skin irritation. Harmful if absorbed through the skin. 2,4-Dinitrophenol causes maculopapular dermatitis. Dermatitis may be due to either primary irritation or allergic sensitivity.

Ingestion: May be fatal if swallowed. The metabolic rate of the poisoned individual can increase markedly, and the body temperature is elevated. Dinitrophenol exerts its toxic effects by a general disturbance of cell metabolism resulting in a need to consume excessive amounts of oxygen in order to synthesize the essential adenine nucleotide required for cell survival in the brain, heart, and muscles.

Inhalation: May be fatal if inhaled. Causes respiratory tract irritation. May cause effects similar to those described for ingestion. Signs and symptoms of acute poisoning in humans include nausea, restlessness, flushed skin, sweating, rapid respiration, tachycardia, fever, cyanosis, and finally, collapse and coma. If the acute phase of poisoning is survived, the patient usually tolerates later complications, which may include renal insufficiency and toxic hepatitis.

Chronic: Prolonged or repeated skin contact may cause dermatitis. May cause liver and kidney damage. May cause reproductive and fetal effects. 2,4-Dinitrophenol signs and symptoms are fever/hyperthermia, skin discoloration, acidosis (metabolic, delayed), hypotension, cataract (subcapsular), hearing impairment

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

Skin: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.

Ingestion: Call a poison control center. If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: POISON material. If inhaled, get medical aid immediately. Remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. This material poses an explosion hazard when dry. Flammable solid.

Extinguishing Media: If water is the only media available, use in flooding amounts. For large fires flood fire with water from a distance.

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 3; Flammability: 2; Instability: 1

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Reduce airborne dust and prevent scattering by moistening with water. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Remove all sources of ignition. Use a spark-proof tool. If the material is dry, explosives experts may be necessary to dispose of the spill. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Wash hands before eating. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Ground and bond containers when transferring material. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Do not ingest or inhale. Store protected from light. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

Storage: Store in a cool place in the original container and protect from sunlight. Store in a tightly closed container. Material can ignite if dry. Do not allow material to completely dry. Keep container closed to prevent drying out.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
2,4-Dinitrophenol	none listed	none listed	none listed
Water	none listed	none listed	none listed
Dinitrophenol (mixed isomers)	none listed	none listed	none listed

OSHA Vacated PELs: 2,4-Dinitrophenol: No OSHA Vacated PELs are listed for this chemical. Water: No OSHA Vacated PELs are listed for this chemical. Dinitrophenol (mixed isomers): No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Use chemical splash and impact-rated goggles.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Solid

Appearance: yellow to brown

Odor: None reported.

pH: Not available.

Vapor Pressure: Not available.

Vapor Density: 6.35

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: Not available.

Freezing/Melting Point: 114-115 deg C

Decomposition Temperature: Not available.

Solubility: Slightly soluble.

Specific Gravity/Density: 1.683

Molecular Formula: C₆H₄N₂O₅

Molecular Weight: 184.11

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: High temperatures, light, ignition sources, dehydrating agents.

Incompatibilities with Other Materials: Strong oxidizing agents, strong bases, acid chlorides, acid anhydrides, and light. Forms explosive salts with alkalis and ammonia.

Hazardous Decomposition Products: Nitrogen oxides, carbon monoxide, carbon dioxide.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 51-28-5: SL2800000
CAS# 7732-18-5: ZC0110000
CAS# 25550-58-7: SL2625000
LD50/LC50:

CAS# 51-28-5:
Draize test, rabbit, skin: 300 mg/4W (Intermittent) Mild;
Oral, mouse: LD50 = 45 mg/kg;
Oral, mouse: LD50 = 72 mg/kg;
Oral, rabbit: LD50 = 30 mg/kg;
Oral, rat: LD50 = 30 mg/kg;

CAS# 7732-18-5:
Oral, rat: LD50 = >90 mL/kg;

CAS# 25550-58-7:

Lethal doses for orally ingested 2,4-dinitrophenol in humans have been reported to be 14 to 43 mg/kg.

Carcinogenicity:

CAS# 51-28-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 7732-18-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 25550-58-7: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information available.

Teratogenicity: No information available.

Reproductive Effects: May cause reproductive effects.

Mutagenicity: No information available.

Neurotoxicity: No information available.

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. No information available.

Environmental: No information available.

Physical: No information available.

Other: Dinitrophenol is used as an insecticide and as a wood preservative. All nitrophenols inhibit the microbial growth of natural aquatic systems because they uncouple the metabolic process of oxidative phosphorylation.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: CAS# 51-28-5: waste number P048.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	DINITROPHENOL, WETTED	2,4-DINITROPHENOL
Hazard Class:	4.1	4.1(6.1)
UN Number:	UN1320	UN1320
Packing Group:	I	I
Additional Info:		WETTED 15%

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 51-28-5 is listed on the TSCA inventory.
CAS# 7732-18-5 is listed on the TSCA inventory.
CAS# 25550-58-7 is not listed on the TSCA inventory. It is for research and development use only.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 51-28-5: 10 lb final RQ; 4.54 kg final RQ CAS# 25550-58-7: 10 lb final RQ; 4.54 kg final RQ

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 51-28-5: immediate, fire.

Section 313

This material contains 2,4-Dinitrophenol (CAS# 51-28-5, >65%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

Clean Air Act:

CAS# 51-28-5 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

CAS# 51-28-5 is listed as a Hazardous Substance under the CWA. CAS# 51-28-5 is listed as a Priority Pollutant under the Clean Water Act. CAS# 51-28-5 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 51-28-5 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Massachusetts.

CAS# 7732-18-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

CAS# 25550-58-7 can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations**European Labeling in Accordance with EC Directives****Hazard Symbols:**

T F N

Risk Phrases:

R 1 Explosive when dry.

R 11 Highly flammable.

R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.

R 33 Danger of cumulative effects.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 37 Wear suitable gloves.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 60 This material and its container must be disposed of as hazardous waste.

S 28A After contact with skin, wash immediately with plenty of water

S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)

CAS# 51-28-5: No information available.

CAS# 7732-18-5: No information available.

CAS# 25550-58-7: No information available.

Canada - DSL/NDSL

CAS# 51-28-5 is listed on Canada's DSL List.

CAS# 7732-18-5 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B4, D1A.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 51-28-5 is listed on the Canadian Ingredient Disclosure List.

CAS# 25550-58-7 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 8/21/1998

Revision #7 Date: 1/13/2006

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.