### SECTION 1: CHEMICAL PRODUCT and COMPANY IDENTIFICATION

| Product Name: | 2,4-Dinitrophenol, 98% |
| Manufacturer Name: | Lancaster Synthesis, Inc. |
| Supplier: | Lancaster Synthesis, Inc. |
| Address: | 1 Industrial Drive, Pelham, NH 03076 |
| Business Phone: | 603-889-3306 |
| Business Fax: | 603-889-3326 |
| For information in North America, call: | 603-889-3306 |

**CHEMTREC Numbers:**
- For emergencies in the US, call CHEMTREC: 800-424-9300
- For emergencies outside US, call INTERNATIONAL: (703)527-3887
- For Nonemergency, call: (800)262-8200

### SECTION 2: COMPOSITION, INFORMATION ON INGREDIENTS

| Chemical Name | 2,4-Dinitrophenol |
| CAS# | 51-28-5 |
| % Weight (Typical) | 98 |

### SECTION 3: HAZARDS IDENTIFICATION

**Emergency Overview:**
Highly toxic. Reproductive effects. Mutation data. Irritant.

**2,4-Dinitrophenol:**
- **Route of Exposure:** Skin. Ingestion.
- **Potential Health Effects:**
  - **Eye Contact:** No data
  - **Skin Contact:** Causes skin irritation.
  - **Inhalation:** No data
  - **Ingestion:** Highly toxic by ingestion.
SECTION 4 : FIRST AID MEASURES
Eye Contact: Immediately flush eyes with plenty of water for at least 20 minutes. Assure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention if irritation persists, or symptoms of overexposure become apparent.

Skin Contact: Immediately wash skin with plenty of water for at least 20 minutes, while removing contaminated clothing and shoes. Get medical attention especially, if irritation develops, persists, or symptoms of overexposure become apparent.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Keep warm. Get immediate medical attention.

Ingestion: If swallowed, call a physician or poison control center immediately. Never give anything by mouth to an unconscious person. Do not induce vomiting unless instructed by medical personnel. Get medical attention.

Other First Aid: For skin contact use continuous swabbing with polyethylene glycol 400 in conjunction with water flushing. Continue treatment, changing swabs frequently, until the odor of phenol disappears. Exposures require specialized first aid with contact and medical follow-up.

SECTION 5 : FIRE FIGHTING MEASURES
Flash Point: No data
Extinguishing Media: Use dry powder or carbon dioxide when fighting a fire involving this material.
Unsuitable Media: Water extinguishers are not recommended.
Protective Equipment: As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH (approved or equivalent) and full protective gear.

SECTION 6 : ACCIDENTAL RELEASE MEASURES
Personal Precautions: Use proper personal protective equipment as listed in section 8.
Spill Cleanup Measures: Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up or absorb material, then place into a suitable clean, dry, closed container. Avoid generating dusty conditions. Refer to section 13 for disposal requirements.
Environmental Precautions: Do not allow material to enter drains or streams.

SECTION 7 : HANDLING and STORAGE
Handling: This product should be handled only by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals, who should take into account the fire, health and chemical hazard data. It should always be handled in an efficient fume hood or equivalent system. The user should consider that the toxicological and physiological properties of many compounds are not yet well determined and that new hazardous products may arise from reactions between chemicals. Care should be taken to prevent any chemical from coming into contact with the skin or eyes and from contaminating personal clothing.

Storage: Store in a cool, dry, well ventilated area away from sources of heat, combustible materials, and incompatible substances. Keep container tightly closed when not in use. Supplied as a moist solid containing approximately 15% water.

Hygiene Practices: Wash thoroughly after handling. Avoid contact with eyes and skin. Avoid inhaling dust.
### SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

**Engineering Controls:** Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Where such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.

**Skin Protection Description:** Wear suitable protective clothing to prevent contact with skin.

**Hand Protection Description:** Wear appropriate protective gloves. Consult glove manufacturers for glove permeability data.

**Eye/Face Protection:** Wear appropriate protective glasses or splash goggles as described by 29 CFR 1910.133, OSHA eye and face protection regulation, or the European standard EN 166.

**Respiratory Protection:** A NIOSH approved air-purifying respirator with an appropriate cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited to airborne concentrations that are typically within 10 times the exposure limit. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection. A respiratory protection program that meets OSHAs 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirators use.

**Other Protective:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

### SECTION 9: PHYSICAL and CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical State/Appearance:</th>
<th>Solid</th>
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<tbody>
<tr>
<td>Color:</td>
<td>Yellow</td>
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<tr>
<td>Vapor Density:</td>
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<td>Flash Point:</td>
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<td>Boiling Point:</td>
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</tr>
<tr>
<td>Melting Point:</td>
<td>106-108°C (32-226.4°F) (dry)</td>
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<td>n-Octanol/water partition coefficient:</td>
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<tr>
<td>Solubility in Water:</td>
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<td>Density:</td>
<td>1.683 @ 24º (Ref:Sax)</td>
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<tr>
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<tr>
<td>Molecular Weight:</td>
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</table>

### SECTION 10: STABILITY and REACTIVITY

**Conditions to Avoid:** Heat, flames and sparks.

**Incompatibilities with Other Materials:** Oxidizing agents.

**Possible Decomposition Product:** Carbon monoxide. Hydrogen cyanide, oxides of nitrogen.
SECTION 11: TOXICOLOGICAL INFORMATION

2,4-Dinitrophenol:

RTECS Number: SL2800000

Eye Effect: No data reported in the cited references as of the revision date.

Skin Effects: Skin - guinea pig LDLo: 700 mg/kg (RTECS)

Ingestion Effects:
- Oral - rat LD50: 30 mg/kg (RTECS);
- Oral - mouse LD50: 45 mg/kg [Behavioral - changes in motor activity (specific assay)]
- Behavioral - ataxia Behavioral - tetany (RTECS);
- Oral - rabbit LD50: 30 mg/kg [Behavioral - changes in motor activity (specific assay)]
- Behavioral - ataxia Behavioral - tetany (RTECS);
- Oral - guinea pig LD50: 81 mg/kg [Behavioral - changes in motor activity (specific assay)]
- Behavioral - ataxia Behavioral - tetany (RTECS);
- Oral - Human LDLo: 36 mg/kg [Behavioral - coma Cardiac - change in rate Nutritional and Gross Metabolic - body temperature increase] (RTECS)

Inhalation Effects: No data reported in the cited references as of the revision date.

Chronic Ingestion Effects:
- Oral - rat TDLo: 6510 ug/kg/30W-I Behavioral - alteration of classical conditioning (RTECS);
- Oral - rabbit TDLo: 126 ug/kg/30W-I Blood - other changes (RTECS)

Mutagenicity:
- Mutation data reported. (RTECS).
- Mutagenecity and Teratogencity: Inadequate animal evidence. (Supplier data).

Teratogenicity: Teratogenic effects. (RTECS)

Reproductive Toxicity:
- Experimental teratogenic and reproductive effects (Sax)

Other Toxicological Information:
- Intraperitoneal - rat LD50: 20 mg/kg;
- Intraperitoneal - mouse LD50: 26 mg/kg;
- Intraperitoneal - guinea pig LD50: 28 mg/kg;
- Intravenous - rat LD50: 72 mg/kg Behavioral - altered sleep time (including change in righting reflex) Behavioral - convulsions or effect on seizure threshold Lungs, Thorax, or Respiration - respiratory stimulation;
- Intravenous - mouse LD50: 56 mg/kg Behavioral - altered sleep time (including change in righting reflex) Behavioral - convulsions or effect on seizure threshold Lungs, Thorax, or Respiration - respiratory stimulation;
- Subcutaneous - rat LD50: 25 mg/kg;
- Subcutaneous - rabbit LDLo: 20 mg/kg;
- Subcutaneous - mouse LD50: 58 mg/kg Behavioral - altered sleep time (including change in righting reflex) Behavioral - convulsions or effect on seizure threshold Lungs, Thorax, or Respiration - respiratory stimulation;
- Subcutaneous - guinea pig LDLo: 25 mg/kg Nutritional and Gross Metabolic - body temperature increase;
- Intramuscular - pigeon LD50: 6500 ug/kg Nutritional and Gross Metabolic - body temperature increase;
- Intramuscular - pigeon LD50: 6500 ug/kg Nutritional and Gross Metabolic - body temperature increase

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity:
- IC50 Daphnia magna 7.2mg/l/24H. LC50 Pimephales promelas 19.4mg/l/96H/flow-through/26.5°C.

Bioaccumulation:
- Not expected to significantly bioaccumulate and/or bioconcentrate in aquatic organisms.
- BCF(calculated) <10.

Biodegradation:
- Not biodegradable in soil and water, 0% after 21 days. Solutions and vapors in the atmosphere are photodegradable, half-life of the latter ca 14 hours.

Environmental Stability:
- Not expected to persist in the environment.
SECTION 13 : DISPOSAL CONSIDERATIONS
Catalog No. 4105

Waste Disposal: Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines, by a licensed disposal company.

EPA Waste Number: P048 for 2,4-Dinitrophenol CAS Number: 51-28-5

SECTION 14 : TRANSPORT INFORMATION
Catalog No. 4105

DOT Shipping Name: Dinitrophenol, wetted [with not less than 15 percent water, by mass]
DOT Hazard Class: 4.1
DOT Identification Number: UN1320
DOT Packing Group: I
DOT Subpart E Labeling Requirement: 4.1, 6.1

SECTION 15 : REGULATORY INFORMATION
Catalog No. 4105

2,4-Dinitrophenol:
TSCA 8(b): Inventory Status: Listed on the TSCA inventory.
Risk Phrases: R23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
R33 Danger of cumulative effects.
R50 Very toxic to aquatic organisms.
Safety Phrase: S28 After contact with skin, wash immediately with plenty of water
S37 Wear suitable gloves.
S45 In case of accident or if you feel unwell, seek medical advice immediately
S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

SECTION 16 : ADDITIONAL INFORMATION
Catalog No. 4105

MSDS Preparation Date: January 1, 2002, Version 1
MSDS Revision Date: April 14, 2003.
MSDS Author: Actio Corporation.

Disclaimer:
This Health and Safety Information is correct to the best of our knowledge and belief at the date of its publication but we cannot accept liability for any loss, injury or damage which may result from its use. We shall ensure, so far as is reasonably practicable, that any revision of this Data Sheet is sent to all customers to whom we have directly supplied this substance, but must point out that it is the responsibility of any intermediate supplier to ensure that such revision is passed to the ultimate user. The information given in the Data Sheet is designed only as a guidance for safe handling, storage and the use of the substance. It is not a specification nor does it guarantee any specific properties. All chemicals should be handled only by competent personnel, within a controlled environment.

Should further information be required, this can be obtained through the sales office whose address is at the top of this data sheet. We welcome any additional information about our products that customers have obtained by personal experience.

References:
1. American Chemical Society, STN Easy Online Database
6. Industrial Hygiene and Toxicology, by F.A. Patty.
7. National Library of Medicine, Department of Health and Human Services, Hazardous Substances Data Bank (HSDB).
9. NIOSH Registry of Toxic Effects of Chemical Substances (RTECS) and Pocket Guide to Chemical Hazards.