GARDENA, CA
NEW BRUNSWICK, NJ

Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment
1 / 3 / 3	Health Hazard 2 Fire Hazard 1 Reactivity 3	See Section 15.

Section 1. Chemical Product and Company Identification

Common Name/ Trade Name	**2,4-Dinitrotoluene**	**Catalog Number(s).**	D2886
		CAS#	121-14-2
Manufacturer	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	**RTECS**	XT1575000
		TSCA	TSCA 8(b) inventory: 2,4-Dinitrotoluene
Commercial Name(s)	Not available.	**CI#**	Not available.
Synonym	1-Methyl-2,4-dinitrobenzene; 2,4-Dinitrotoluol; 2,4-DNT; 4-Methyl-1,3-dintrobenzene; Benzene, 1-methyl-2,4-dinitro-; Dinitrotoluene; DNT	**IN CASE OF EMERGENCY CHEMTREC (24hr) 800-424-9300**	
Chemical Name	Toluene, 2,4-dinitro-		
Chemical Family	Not available.	CALL (310) 516-8000	
Chemical Formula	C7-H6-N2-O4		
Supplier	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248		

Section 2.Composition and Information on Ingredients

		Exposure Limits			
Name	**CAS #**	**TWA (mg/m^3)**	**STEL (mg/m^3)**	**CEIL (mg/m^3)**	**% by Weight**
1) {2,4-}Dinitrotoluene	121-14-2				100

Toxicological Data on Ingredients

2,4-Dinitrotoluene:
ORAL (LD50): Acute: 268 mg/kg [Rat]. 790 mg/kg [Mouse]. 1300 mg/kg [Guinea pig].
DERMAL (LD50): Acute: >1000 mg/kg [Guinea pig].

Section 3. Hazards Identification

Potential Acute Health Effects

Hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant, permeator), of eye contact (irritant).

Potential Chronic Health Effects

CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC.
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance may be toxic to blood, kidneys, liver, central nervous system (CNS).
Repeated or prolonged exposure to the substance can produce target organs damage.

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Section 4. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Serious Skin Contact	Not available.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Serious Inhalation	Not available.
Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.
Serious Ingestion	Not available.

Section 5. Fire and Explosion Data

Flammability of the Product	May be combustible at high temperature.
Auto-Ignition Temperature	420°C (788°F)
Flash Points	CLOSED CUP: 206.67°C (404°F).
Flammable Limits	Not available.
Products of Combustion	These products are carbon oxides (CO, CO2), nitrogen oxides (NO, NO2...).
Fire Hazards in Presence of Various Substances	Slightly flammable to flammable in presence of heat.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product in presence of static discharge: Not available. Slightly explosive in presence of shocks, of heat.
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.
Special Remarks on Fire Hazards	Not available.
Special Remarks on Explosion Hazards	Explosive if confined and heated. Closed containers may rupture violently when heated. It may be shock sensitive. Impact sensitivity (minimum fall of a 2 kg. weight from a height of over 100 cm to cause at least 1 explosion in ten trials). This data came from the Hazardous Substance Data Bank.

Section 6. Accidental Release Measures

Small Spill	Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
Large Spill	Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

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Section 7. Handling and Storage

Precautions	Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, reducing agents, metals, alkalis.
Storage	Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
Personal Protection in Case of a Large Spill	Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits	TWA: 1.5 (mg/m^3) from OSHA (PEL) [United States] SKIN TWA: 1.5 (mg/m^3) from NIOSH [United States] SKIN TWA: 0.2 (mg/m^3) from ACGIH (TLV) [United States] SKIN Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance	Solid. (Crystals solid.)	**Odor**	Slight.
Molecular Weight	182.14 g/mole	**Taste**	Not available.
pH (1% soln/water)	Not applicable.	**Color**	Yellow. Yellow to red.

Boiling Point	300°C (572°F)
Melting Point	71°C (159.8°F) Decomposition Temperature: 250 deg. C. Decomposition is sustaining at 280 deg. C
Critical Temperature	Not available.
Specific Gravity	1.3208 (Water = 1)
Vapor Pressure	Not applicable.
Vapor Density	6.27 (Air = 1)
Volatility	Not available.
Odor Threshold	Not available.
Water/Oil Dist. Coeff.	The product is more soluble in oil; log(oil/water) = 2
Ionicity (in Water)	Not available.
Dispersion Properties	See solubility in water, diethyl ether, acetone.
Solubility	Easily soluble in acetone. Soluble in diethyl ether. Insoluble in cold water. **Soluble in ethanol.** **Solubility in Water: 0.027% or 270 mg/1000 ml**

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Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Excess heat, incompatible materials, dust generation, confined spaces.
Incompatibility with various substances	Reactive with oxidizing agents, reducing agents, metals, alkalis.
Corrosivity	Not available.
Special Remarks on Reactivity	Incompatible with oxidizers, caustics, metals such as tin and zinc.
Special Remarks on Corrosivity	Not available.
Polymerization	Will not occur.

Section 11. Toxicological Information

Routes of Entry	Absorbed through skin. Inhalation. Ingestion.
Toxicity to Animals	Acute oral toxicity (LD50): 268 mg/kg [Rat]. Acute dermal toxicity (LD50): >1000 mg/kg [Guinea pig].
Chronic Effects on Humans	**CARCINOGENIC EFFECTS**: Classified 2B (Possible for human.) by IARC. **MUTAGENIC EFFECTS**: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. May cause damage to the following organs: blood, kidneys, liver, central nervous system (CNS).
Other Toxic Effects on Humans	Hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant, permeator).
Special Remarks on Toxicity to Animals	Not available.
Special Remarks on Chronic Effects on Humans	May affect genetic material (mutagenic). May cause cancer. May cause adverse reproductive effects based on animal test data (Rats - pre-implantation mortality/reduced number of inplants per female; effects on spermatogenesis in males). No human data found.
Special Remarks on other Toxic Effects on Humans	Acute Potential Health Effects: Skin: Causes skin irritation. Draize tests on rabbit skin showed mild skin irritation 24 hrs after application of a 500 mg. It can be absorbed by the skin. Absorption through the skin may cause a chemical change of the blood oxyhemoglobin to methemoglobin resulting in Methemoglobinemia. May form methemoblobin in sufficient concentration to cause cyanosis. Cyanosis occurs when methemoglobion of the blood is 15% or more. The symptoms observed include blueness of the lips, the nose, and the earlobes. The individual usually feels well, has no complaints until the methemoglobin concentration approaches 40%, when there usually is weakness and dizziness; at levels of 70% methemoglobin, there may be ataxia and other central nervous system effects (see ingestion), dyspnea on mild exertion, tachycardia, nausea, vomiting and drowsiness, and other symptoms similar to that of acute ingestion. Eyes: May cause eye irritation Inhalation: Causes respiratory tract irritation. Inhalation of the 2,4-DNT dust may also cause Methemoglobinemia with similar symptoms to those of skin absorption and ingestion. Ingestion: Harmful if swallowed. Causes gastrointestinal irritation with nausea, vomiting, anorexia. Absorption from the gastrointestinal tract can also cause Methemoglobinemia. Symptoms due to formation of methemoglobin in the blood can include: Cyanosis, chocolate-brown blood, central nervous system effects such as vertigo, headache, fatigue, dizziness, weakness, nausea, vomiting, dyspnea, arthralgia, insomnia, tremor, paralysis, unconsciousness, respiratory symptoms such as chest pain, shortness of breath, heart palpitations, tachycardia. Chronic Potential Health Effects: Prolonged or repeated exposure via skin contact/absorption, inhalation and ingestion may affect the liver, kidneys as well as the blood(formation of methemoglobin, anemia, changes in blood serum composition), behavior/central nervous system. It may also cause weight loss.

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Section 12. Ecological Information

Ecotoxicity	Ecotoxicity in water (LC50): 31 mg/l 96 hours [Fish (Pimephales promelas (fathead minnow))].
BOD5 and COD	Not available.
Products of Biodegradation	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the Products of Biodegradation	The products of degradation are less toxic than the product itself.
Special Remarks on the Products of Biodegradation	Not available.

Section 13. Disposal Considerations

Waste Disposal	Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14. Transport Information

DOT Classification	Not a DOT controlled material (United States).
Identification	Not applicable.
Special Provisions for Transport	RQ: 10 lbs./4.53 kg
DOT (Pictograms)	

Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: 2,4-Dinitrotoluene
California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: 2,4-Dinitrotoluene
California prop. 65 (no significant risk level): 2,4-Dinitrotoluene: 0.002 mg/day (value)
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: 2,4-Dinitrotoluene
Connecticut hazardous material survey.: 2,4-Dinitrotoluene
Illinois chemical safety act: 2,4-Dinitrotoluene
New York release reporting list: 2,4-Dinitrotoluene
Rhode Island RTK hazardous substances: 2,4-Dinitrotoluene
Pennsylvania RTK: 2,4-Dinitrotoluene
Massachusetts RTK: 2,4-Dinitrotoluene
Massachusetts spill list: 2,4-Dinitrotoluene
New Jersey: 2,4-Dinitrotoluene
New Jersey spill list: 2,4-Dinitrotoluene
Louisiana spill reporting: 2,4-Dinitrotoluene
California Director's List of Hazardous Substances: 2,4-Dinitrotoluene
TSCA 8(b) inventory: 2,4-Dinitrotoluene
TSCA 8(a) PAIR: 2,4-Dinitrotoluene
TSCA 8(d) H and S data reporting: 2,4-Dinitrotoluene: Effective Date: 3/11/94; Sunset Date: 6/30/98
SARA 313 toxic chemical notification and release reporting: 2,4-Dinitrotoluene
CERCLA: Hazardous substances.: 2,4-Dinitrotoluene: 10 lbs. (4.536 kg)

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California Proposition 65 Warnings	California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: 2,4-Dinitrotoluene
Other Regulations	OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.
Other Classifications	**WHMIS (Canada)** CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).
	DSCL (EEC) R45- May cause cancer. R48/22- Harmful: danger of serious damage to health by prolonged exposure if swallowed. R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R62- Possible risk of impaired fertility. R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S53- Avoid exposure - obtain special instructions before use. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.)

Health Hazard	2
Fire Hazard	1
Reactivity	3
Personal Protection	E

National Fire Protection Association (U.S.A.)

Health — Flammability — Reactivity — Specific hazard

WHMIS (Canada) (Pictograms)

DSCL (Europe) (Pictograms)

TDG (Canada) (Pictograms)

ADR (Europe) (Pictograms)

Protective Equipment

Gloves.

Lab coat.

Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.

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Safety glasses.

Section 16. Other Information

MSDS Code	**D2225**
References	Not available.
Other Special Considerations	Not available.

Validated by Sonia Owen on 8/11/2006.	**Verified by Sonia Owen.** **Printed 9/12/2006.**

CALL (310) 516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.