

Material Safety Data Sheet

2,4-Dinitrotoluene, 95%, remainder 2,6-dinitrotoluene

ACC# 86572

Section 1 - Chemical Product and Company Identification

MSDS Name: 2,4-Dinitrotoluene, 95%, remainder 2,6-dinitrotoluene

Catalog Numbers: AC146420000, AC146420010, AC146420050, AC146422500

Synonyms: DNT.

Company Identification:

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01

For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
121-14-2	2,4-Dinitrotoluene	95	204-450-0
606-20-2	2,6-Dinitrotoluene	5	210-106-0

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: yellow crystals.

Danger! Explosive hazard if confined and heated. Organic contaminants lower decomposition temperature and increase risk of explosion. May be fatal if inhaled. Causes severe eye and skin irritation. Causes respiratory tract irritation. Harmful if swallowed or absorbed through the skin. May cause methemoglobinemia. Possible risk of impaired fertility.

Target Organs: Cardiovascular system, reproductive system.

Potential Health Effects

Eye: Causes eye irritation.

Skin: Causes skin irritation.

Ingestion: Harmful if swallowed. Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May form methemoglobin which in sufficient concentration causes cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood).

Inhalation: Causes respiratory tract irritation. Methemoglobinemia is characterized by dizziness, drowsiness, headache, shortness of breath, cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), rapid heart rate and chocolate-brown blood.

Chronic: May cause cancer according to animal studies. There is a danger of cumulative effects.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

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

Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. 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.

Extinguishing Media: Use water fog, dry chemical, carbon dioxide, or regular foam.

Flash Point: 207 deg C (404.60 deg F)

Autoignition Temperature: 420 deg C (788.00 deg F)

Explosion Limits, Lower:Not available.

Upper: Not available.

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

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. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Use only in a well-ventilated area. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation.

Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from reducing agents. Separate from oxidizing materials.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
2,4-Dinitrotoluene	0.2 mg/m3 TWA (listed under Dinitrotoluene (mixed isomers)).Skin - potential significant contribution to overall exposure by the cutaneous route (listed under Dinitrotoluene (mixed isomers)).	1.5 mg/m3 TWA (listed under Dinitrotoluene (mixed isomers)).50 mg/m3 IDLH (listed under Dinitrotoluene (mixed isomers)).	1.5 mg/m3 TWA (listed under Dinitrotoluene (mixed isomers)).
2,6-Dinitrotoluene	0.2 mg/m3 TWA (listed under Dinitrotoluene (mixed isomers)).Skin - potential significant contribution to overall exposure by the cutaneous route (listed under Dinitrotoluene (mixed isomers)).	1.5 mg/m3 TWA (listed under Dinitrotoluene (mixed isomers)).50 mg/m3 IDLH (listed under Dinitrotoluene (mixed isomers)).	1.5 mg/m3 TWA (listed under Dinitrotoluene (mixed isomers)).
Dinitrotoluene (mixed isomers)	0.2 mg/m3 TWA; Skin - potential significant contribution to overall exposure by the cutaneous route	1.5 mg/m3 TWA 50 mg/m3 IDLH	1.5 mg/m3 TWA

OSHA Vacated PELs: 2,4-Dinitrotoluene: No OSHA Vacated PELs are listed for this chemical. 2,6-Dinitrotoluene: No OSHA Vacated PELs are listed for this chemical. Dinitrotoluene (mixed isomers): 1.5 mg/m3 TWA

Personal Protective Equipment

Eyes: Wear chemical splash 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: Crystals

Appearance: yellow

Odor: None reported.

pH: Not available.

Vapor Pressure: 1 mm Hg @ 20 deg C

Vapor Density: Not available.

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: 250 deg C @ 760 mm Hg

Freezing/Melting Point: 65.5-71 deg C

Decomposition Temperature: > 250 deg C

Solubility: Insoluble.

Specific Gravity/Density: 1.5

Molecular Formula: C₇H₆N₂O₄

Molecular Weight: 182.14

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. There are instances of explosion during manufacture or storage.

Conditions to Avoid: Dust generation, excess heat, confined spaces.

Incompatibilities with Other Materials: Oxidizing agents, reducing agents, strong bases, mixture with nitric acid is highly explosive, ignites on contact with sodium oxide.

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

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 121-14-2: XT1575000

CAS# 606-20-2: XT1925000

CAS# 25321-14-6: XT1300000

LD50/LC50:

CAS# 121-14-2:

Dermal, guinea pig: LD50 = >1 gm/kg;
Draize test, rabbit, skin: 500 mg/24H Mild;
Oral, mouse: LD50 = 790 mg/kg;
Oral, rat: LD50 = 268 mg/kg;

CAS# 606-20-2:

Draize test, rabbit, skin: 500 mg/24H Mild;
Inhalation, rat: LC50 = 240 mg/m³/6H;
Oral, mouse: LD50 = 621 mg/kg;
Oral, rat: LD50 = 177 mg/kg;

CAS# 25321-14-6:

Oral, mouse: LD50 = 750 mg/kg;

Carcinogenicity:

CAS# 121-14-2:

- **ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans (listed as 'Dinitrotoluene (mixed isomers)').
- **California:** carcinogen, initial date 7/1/88
- **NTP:** Not listed.
- **IARC:** Group 2B carcinogen

CAS# 606-20-2:

- **ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans (listed as 'Dinitrotoluene (mixed isomers)').
- **California:** carcinogen, initial date 7/1/95
- **NTP:** Not listed.
- **IARC:** Group 2B carcinogen

CAS# 25321-14-6:

- **ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans
- **California:** carcinogen, initial date 5/1/96
- **NTP:** Not listed.
- **IARC:** Not listed.

Epidemiology: No information available.

Teratogenicity: No information available.

Reproductive Effects: See actual entry in RTECS for complete information.

Mutagenicity: See actual entry in RTECS for complete information.

Neurotoxicity: No information available.

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Fathead Minnow: LC50 = 31.0 mg/L; 96 Hr.; Unspecified

Bacteria: Phytobacterium phosphoreum: EC50 = 20.9 mg/L; 30 minutes; Microtox test

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: None listed.

RCRA U-Series:

CAS# 121-14-2: waste number U105.

CAS# 606-20-2: waste number U106.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	DINITROTOLUENES	DINITROTOLUENES, SOLID
Hazard Class:	6.1	6.1
UN Number:	UN2038	UN2038
Packing Group:	II	II

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 121-14-2 is listed on the TSCA inventory.

CAS# 606-20-2 is listed on the TSCA inventory.
CAS# 25321-14-6 is listed on the TSCA inventory.

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# 121-14-2: 10 lb final RQ; 4.54 kg final RQ CAS# 606-20-2: 100 lb final RQ; 45.4 kg final RQ CAS# 25321-14-6: 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.

Section 313

This material contains 2,4-Dinitrotoluene (CAS# 121-14-2, 95%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

This material contains 2,6-Dinitrotoluene (CAS# 606-20-2, 5%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

This material contains Dinitrotoluene (mixed isomers) (CAS# 25321-14-6, -%), which is subject to the reporting requirements of Section 313 of SARA Title

Clean Air Act:

CAS# 121-14-2 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# 121-14-2 is listed as a Hazardous Substance under the CWA. CAS# 606-20-2 is listed as a Hazardous Substance under the CWA. CAS# 25321-14-6 is listed as a Hazardous Substance under the CWA. CAS# 121-14-2 is listed as a Priority Pollutant under the Clean Water Act. CAS# 606-20-2 is listed as a Priority Pollutant under the Clean Water Act. CAS# 121-14-2 is listed as a Toxic Pollutant under the Clean Water Act. CAS# 606-20-2 is listed as a Toxic Pollutant under the Clean Water Act. CAS# 25321-14-6 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# 121-14-2 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, (listed as Dinitrotoluene (mixed isomers)), Massachusetts.

CAS# 606-20-2 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, (listed as Dinitrotoluene (mixed isomers)), Massachusetts.

CAS# 25321-14-6 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:

WARNING: This product contains 2,4-Dinitrotoluene, a chemical known to the state of California to cause cancer. WARNING: This product contains 2,4-Dinitrotoluene, a chemical known to the state of California to cause male reproductive toxicity. WARNING: This product contains 2,6-Dinitrotoluene, a chemical known to the state of California to cause cancer. WARNING: This product contains 2,6-Dinitrotoluene, a chemical known to the state of California to cause male reproductive toxicity. WARNING: This product contains Dinitrotoluene (mixed isomers), a chemical known to the state of California to cause cancer. WARNING: This product contains Dinitrotoluene (mixed isomers), a chemical known to the state of California to cause male reproductive toxicity. California No Significant Risk Level: CAS# 121-14-2: 2 æg/day NSRL

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T N

Risk Phrases:

R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
R 45 May cause cancer.
R 48/22 Harmful : danger of serious damage to health by prolonged exposure if swallowed.
R 62 Possible risk of impaired fertility.
R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R 68 Possible risk of irreversible effects.

Safety Phrases:

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 53 Avoid exposure - obtain special instructions before use.
S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)

CAS# 121-14-2: 3
CAS# 606-20-2: 3
CAS# 25321-14-6: No information available.

Canada - DSL/NDSL

CAS# 121-14-2 is listed on Canada's DSL List.
CAS# 606-20-2 is listed on Canada's DSL List.
CAS# 25321-14-6 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D1B, D2A.

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# 121-14-2 is listed on the Canadian Ingredient Disclosure List.

CAS# 606-20-2 (listed as Dinitrotoluene (mixed isomers)) is listed on the Canadian Ingredient Disclosure List.

CAS# 25321-14-6 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information
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MSDS Creation Date: 6/15/1999

Revision #5 Date: 10/03/2005

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.