

# 3,4-Dinitrotoluene: sc-232030



*The Power to Question*

## MATERIAL SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** 3,4-Dinitrotoluene

**Product Number:** sc-232030

**Supplier:** Santa Cruz Biotechnology, Inc.  
2145 Delaware Avenue  
Santa Cruz, CA 95060  
800.457.3801 or 831.457.3800

**Emergency:** ChemWatch  
Within the US & Canada: 877-715-9305  
Outside the US & Canada: +800 2436 2255 (1-800-CHEMCALL) or call +613 9573 3112

### 2. HAZARDS IDENTIFICATION

#### Emergency Overview

#### OSHA Hazards

Target Organ Effect, Toxic by inhalation, Toxic by ingestion, Toxic by skin absorption, Carcinogen, Teratogen, Mutagen

#### Target Organs

Liver injury may occur. Liver injury may occur.

#### GHS Classification

Acute toxicity, Oral (Category 3)

Acute toxicity, Inhalation (Category 3)

Acute toxicity, Dermal (Category 3)

Skin irritation (Category 3)

Germ cell mutagenicity (Category 2)

Carcinogenicity (Category 1B)

Reproductive toxicity (Category 2)

Specific target organ toxicity - repeated exposure (Category 2)

Acute aquatic toxicity (Category 2)

Chronic aquatic toxicity (Category 2)

#### GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

#### Hazard statement(s)

H301 + H311

Toxic if swallowed or in contact with skin

H316

Causes mild skin irritation.

H331

Toxic if inhaled.

H341

Suspected of causing genetic defects.

H350

May cause cancer.

H361

Suspected of damaging fertility or the unborn child.

H373

May cause damage to organs through prolonged or repeated exposure.

H411

Toxic to aquatic life with long lasting effects.

**Precautionary statement(s)**

|             |                                                                      |
|-------------|----------------------------------------------------------------------|
| P201        | Obtain special instructions before use.                              |
| P261        | Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.                |
| P273        | Avoid release to the environment.                                    |
| P280        | Wear protective gloves/ protective clothing.                         |
| P301 + P310 | IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. |
| P311        | Call a POISON CENTER or doctor/ physician.                           |

**HMIS Classification**

|                         |   |
|-------------------------|---|
| Health hazard :         | 2 |
| Chronic Health Hazard : | * |
| Flammability :          | 1 |
| Physical hazards :      | 0 |

**NFPA Rating**

|                     |   |
|---------------------|---|
| Health hazard :     | 2 |
| Fire :              | 1 |
| Reactivity Hazard : | 0 |

**Potential Health Effects**

|            |                                                            |
|------------|------------------------------------------------------------|
| Inhalation | Toxic if inhaled. May cause respiratory tract irritation.  |
| Skin       | Toxic if absorbed through skin. May cause skin irritation. |
| Eyes       | May cause eye irritation.                                  |
| Ingestion  | Toxic if swallowed.                                        |

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Formula : C7H6N2O4  
Molecular Weight : 182.13 g/mol

| <i>CAS-No.</i>                 | <i>EC-No.</i> | <i>Index-No.</i> | <i>Concentration</i> |
|--------------------------------|---------------|------------------|----------------------|
| 3,4-Dinitrotoluene<br>610-39-9 | 210-222-1     | 609-051-00-9     | -                    |

**4. FIRST AID MEASURES****General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

**In case of eye contact**

Flush eyes with water as a precaution.

**If swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**5. FIREFIGHTING MEASURES****Conditions of flammability**

Not flammable or combustible.

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions - Carbon oxides, nitrogen oxides (NOx)

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions

Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

### Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

### Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

| Components         | CAS-No.                                                                                                        | Value | Control parameters    | Basis                                  |
|--------------------|----------------------------------------------------------------------------------------------------------------|-------|-----------------------|----------------------------------------|
| 3,4-Dinitrotoluene | 610-39-9                                                                                                       | TWA   | 1.5 mg/m <sup>3</sup> | USA. NIOSH Recommended Exposure Limits |
| Remarks            | Potential Occupational Carcinogen Various isomers of DNT exist. See Appendix A Potential for dermal absorption |       |                       |                                        |

### Personal protective equipment

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Eye protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin and body protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

|                                           |                   |                       |                   |
|-------------------------------------------|-------------------|-----------------------|-------------------|
| Form                                      | solid             | pH                    | no data available |
| Melting point/freezing point              | 54 - 57 °C - lit. | Boiling point         | no data available |
| Flash point                               | 113 °C closed cup | Ignition temperature  | no data available |
| Auto-ignition temperature                 | no data available | Lower explosion limit | no data available |
| Upper explosion limit                     | no data available | Vapor pressure        | no data available |
| Density                                   | no data available | Water solubility      | no data available |
| Relative vapor density                    | no data available | Odor                  | no data available |
| Odor Threshold                            | no data available | Evaporation rate      | no data available |
| Partition coefficient:<br>n-octanol/water | no data available |                       |                   |

## 10. STABILITY AND REACTIVITY

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

no data available

### Conditions to avoid

no data available

### Materials to avoid

Reducing agents, Strong bases

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions - Carbon oxides, nitrogen oxides (NOx)

### Other decomposition products

no data available

## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

**Oral LD50** LD50 Oral - rat - 807 mg/kg

**Inhalation LC50** Dermal LD50

**Other information on acute toxicity** no data available

### Skin corrosion/irritation

Skin - rabbit - Mild skin irritation

### Serious eye damage/eye irritation

no data available

### Respiratory or skin sensitization

no data available

### Germ cell mutagenicity

In vitro tests showed mutagenic effects

Genotoxicity in vitro - rat - Liver

DNA damage

### Carcinogenicity

Possible human carcinogen

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (3,4-Dinitrotoluene)

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

### Reproductive toxicity

no data available

### Teratogenicity

Suspected human reproductive toxicant

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

May cause damage to organs through prolonged or repeated exposure.

**Aspiration hazard**

no data available

**Potential health effects**

**Inhalation** Toxic if inhaled. May cause respiratory tract irritation.

**Ingestion** Toxic if swallowed.

**Skin** Toxic if absorbed through skin. May cause skin irritation.

**Eyes** May cause eye irritation.

**Signs and Symptoms of Exposure**

Liver injury may occur. Blood disorders, Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer.

**Synergistic effects**

no data available

**Additional Information**

**RTECS:** XT2100000

**12. ECOLOGICAL INFORMATION****PBT and vPvB assessment**

no data available

**Persistence and degradability**

no data available

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**Toxicity**

Toxicity to fish LC50 - *Pimephales promelas* (fathead minnow) - 1.5 mg/l - 96.0 h

Toxicity to daphnia and other aquatic invertebrates EC50 - *Daphnia magna* (Water flea) - 3.1 mg/l - 48 h

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic life with long lasting effects.

**13. DISPOSAL CONSIDERATIONS****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

**14. TRANSPORT INFORMATION****DOT (US)**

UN number: 3454 Class: 6.1

Packing group: II

Proper shipping name: Dinitrotoluenes, solid

Reportable Quantity (RQ): 10 lbs

Marine pollutant: No

Poison Inhalation Hazard: No

**IMDG**

UN number: 3454 Class: 6.1

Packing group: II

EMS-No: F-A, S-A

Proper shipping name: DINITROTOLUENES, SOLID

Marine pollutant: No

**IATA**

UN number: 3454 Class: 6.1

Packing group: II

Proper shipping name: Dinitrotoluenes, solid

## 15. REGULATORY INFORMATION

### OSHA Hazards

Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Carcinogen, Teratogen, Mutagen

### SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

### SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

### Massachusetts Right To Know Components

3,4-Dinitrotoluene

CAS-No.610-39-9

### Pennsylvania Right To Know Components

3,4-Dinitrotoluene

CAS-No.610-39-9

### New Jersey Right To Know Components

3,4-Dinitrotoluene

CAS-No.610-39-9

### California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

## 16. OTHER INFORMATION

*The above information is believed to be correct but does not purport to be complete and should be used only as a guide. The burden of safe use of this material rests entirely with the user.*

06/19/2014