

## Safety Data Sheet

according to Regulation (EC) No 1907/2006 (REACH)  
Classifications according to Regulation (EC) No 1272/2008.  
Printdate 26 Nov 2024

## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product name:

2,4-Dinitrotoluene

### 1.1. Catalog No.:

684805

### 1.2. Relevant identified uses of the substance or mixture

Identified: Laboratory chemical  
uses: R&D

### 1.3. Uses advised against:

HPC Standards GmbH  
Am Wieseneck 7

04451 Cunnersdorf  
Deutschland

Tel. +49 34291 3372-36  
Fax. +49 34291 3372-39  
contact@hpc-standards.com

### 1.4. Emergency telephone number

HPC Standards Tel. +49 34291 3372-36  
This number is only available during office hours.

## 2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture  
Regulation (EC) No 1272/2008  
Acute toxicity - Oral Category 3 - (H301)  
Acute toxicity - Dermal Category 3 - (H311)  
Acute toxicity - Inhalation (Dusts/Mists) Category 3 - (H331)  
Germ cell mutagenicity Category 2 - (H341)  
Carcinogenicity Category 1B - (H350)  
Reproductive toxicity Category 2 - (H361)  
Specific target organ toxicity -- repeated exposure Category 2 - (H373)  
Acute aquatic toxicity Category 1 - (H400)  
Chronic aquatic toxicity Category 1 - (H410)  
Self-reactive substances and mixtures Type G - ( - )

### 2.2. Label elements

#### 2.2.1. Pictogram



## 2.2.2.

### 2.2. Label elements

204-450-0

Contains 2,4-Dinitrotoluene

Signal word

Danger

Hazard statements

H301 - Toxic if swallowed

H311 - Toxic in contact with skin

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

H410 - Very toxic to aquatic life with long lasting effects

Precautionary Statements - EU (§28, 1272/2008)

P260 - Do not breathe dust/fume/gas/mist/vapours/spray

P273 - Avoid release to the environment

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor

P391 - Collect spillage

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

### 2.3. Other hazards

No information available.

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

Endocrine Disruptor Information

Chemical name 2,4-Dinitrotoluene

EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation: -

EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of Substances: -

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Chemical name 2,4-Dinitrotoluene CAS 121-14-2

Weight-% : 100

Weight-% REACH registrationnumber: -

EC No 204-450-0

Classification according to Regulation (EC) No. 1272/2008 [CLP]: Self-react. G Acute Tox. 3 (H301) Acute Tox. 3 (H311)

Acute Tox. 3 (H331) Muta. 2 (H341) Carc. 1B (H350) Repr. 2 (H361) STOT RE 2 (H373) Aquatic Acute 1 (H400) Aquatic

Chronic 1 (H410)

Specific concentration limit (SCL) : -

M-Factor M-Factor (long-term): -

Full text of H- and EUH-phrases: see section 16

Acute Toxicity Estimate

If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components

Chemical name 2,4-Dinitrotoluene 121-14-2

Oral LD50 mg/kg: 268

Dermal LD50 mg/kg: 2500

Inhalation LC50 - 4

hour - dust/mist - mg/L No data available

Inhalation LC50 - 4

hour - vapour - mg/L No data available

Inhalation LC50 - 4

hour - gas - ppm No data available

This product contains one or more candidate substance(s) of very high concern (Regulation (EC) No. 1907/2006 (REACH), Article 59)

Chemical name 2,4-Dinitrotoluene CAS No 121-14-2 SVHC candidates X

### 3.1.1. Formula

C<sub>7</sub>H<sub>6</sub>N<sub>2</sub>O<sub>4</sub>

### 3.1.2. Molecular Weight (g/mol)

182.13

### 3.1.3. CAS-No.

121-14-2

## 4. FIRST AID MEASURES

### 4.1. Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get medical advice/attention. Immediate medical attention is required.

Inhalation If breathing has stopped, give artificial respiration. Get medical attention immediately.

Remove to fresh air. Do not breathe dust. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen.

Eye contact Get immediate medical advice/attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing.

Skin contact Get immediate medical advice/attention. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Ingestion Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.

Self-protection of the first aider Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Do not breathe dust. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Use personal protective equipment as required. See section 8 for more information.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms Coughing and/ or wheezing. Difficulty in breathing.

### 4.3. Indication of any immediate medical attention and special treatment needed

Note to doctors Treat symptomatically.

## 5. FIRE-FIGHTING MEASURES

### 5.1. Extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the

surrounding environment.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the No information available.  
chemical

5.3. Advice for firefighters

Special protective equipment and

precautions for fire-fighters

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment

## 6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing. Avoid generation of dust.

Do not breathe dust. Keep people away from and upwind of spill/leak.

Other information Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so.

6.3. Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Take up mechanically, placing in appropriate containers for disposal.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

## 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling

Avoid formation of dust and aerosols. Advice on safe handling

Work under hood. Do not inhale substance/mixture.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class

Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic

hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Exposure Limits

Europäische Union: -

Österreich: H\*

Belgien TWA: 0.15 mg/m3 \*

Bulgarien TWA: 1.5 mg/m3

Kroatien TWA: 1.5 mg/m3

Zypern: -

Tschechische Republik: TWA: 0.75 mg/m3 Ceiling: 1.5 mg/m3 \*

Dänemark: TWA: 0.15 mg/m3 H\*

Estland TWA: 0.15 mg/m3 STEL: 0.3 mg/m3 A\*

Finnland TWA: 0.2 mg/m3 iho\*

Frankreich: -

Deutschland: -

Deutschland MAK: \*

Griechenland: TWA: 1.5 mg/m3 skin - potential for cutaneous absorption

Ungarn: -

Irland: TWA: 0.2 mg/m3 STEL: 0.6 mg/m3 Sk\*

Italien: -

Italien REL: TWA: 0.2 mg/m3 \*

Lettland: TWA: 1 mg/m3

Litauen: \*TWA: 0.15 mg/m3 STEL: 0.3 mg/m3

Luxemburg: -

Malta: -

Niederlande: -

Norwegen: TWA: 0.15 mg/m3 STEL: 0.45 mg/m3 H\*

Polen: TWA: 0.33 mg/m3 \*

Portugal TWA: 0.2 mg/m3

Rumänien: TWA: 1 mg/m3 STEL: 1.5 mg/m3 \*

Slowakei: -

Slowenien: -

Spanien: TWA: 0.15 mg/m3 vía dérmica\*

Schweden: NGV: 0.15 mg/m3 Vägledande KGV: 0.3 mg/m3 \*

Schweiz: -

Großbritannien: -

Biological occupational exposure limits

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Derived No Effect Level (DNEL) No information available.

Predicted No Effect Concentration

(PNEC)

No information available.

### 8.2. Exposure controls

#### Personal protective equipment

Eye/face protection Avoid contact with eyes. Wear safety glasses with side shields (or goggles).

Hand protection Wear suitable gloves. Impervious gloves. The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374. Wear

protective butyl rubber gloves. Wear protective nitrile rubber gloves.

Gloves: PPE - Glove material: Wear protective butyl rubber gloves

Wear protective nitrile rubber gloves 0.11 mm

Skin and body protection Long sleeved clothing. Chemical resistant apron. Wear suitable protective clothing.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations Wash hands before breaks and immediately after handling the product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Regular cleaning of

equipment, work area and clothing is recommended. Avoid contact with skin, eyes or Contaminated work clothing should

not be allowed out of the workplace. Do not eat, drink or

smoke when using this product. Wash hands before breaks and after work. Wear suitable

gloves and eye/face protection.

Environmental exposure controls Do not allow into any sewer, on the ground or into any body of water.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

Physical state Solid

Appearance Crystalline

Colour light yellow

Odour No information available.

Odour threshold No information available

Property Values Remarks o Method

Melting point / freezing point 69.9 °C None known  
Initial boiling point and boiling range  
No data available None known  
Flammability No data available None known  
Flammability Limit in Air None known  
Upper flammability or explosive limits  
No data available  
Lower flammability or explosive limits  
No data available  
Flash point 207 °C None known  
Autoignition temperature > 300 °C None known  
Decomposition temperature 319.5 °C None known  
pH No data available None known  
pH (as aqueous solution) No data available No information available  
Kinematic viscosity No data available None known  
Dynamic viscosity No data available None known  
Water solubility No data available 0.3 g/L @ 20 °C  
Solubility(ies) No data available None known  
Partition coefficient 1.98 None known  
Vapour pressure 0.000079 hPa @ 20 °C None known  
Relative density 1.32 @ 70 °C  
Bulk density No data available  
Liquid Density No data available  
Relative vapour density 6.27 None known  
Particle characteristics  
Particle Size No information available  
Particle Size Distribution No information available  
9.2. Other information  
Molecular weight 182.13  
Molecular formula C7 H6 N2 O4  
9.2.1. Information with regards to physical hazard classes  
Not applicable 319.5 °C 319.5 °C  
9.2.2. Other safety characteristics  
No information available

## 10. STABILITY AND REACTIVITY

10.1. Reactivity  
Reactivity No information available.  
10.2. Chemical stability  
Stability Stable under normal conditions.  
Explosion data  
Sensitivity to mechanical impact None.  
Sensitivity to static discharge None.  
10.3. Possibility of hazardous reactions  
Possibility of hazardous reactions None under normal processing.  
10.4. Conditions to avoid  
Conditions to avoid Excessive heat.  
10.5. Incompatible materials  
Incompatible materials Amines. Reducing agent. Zinc.  
Hazardous decomposition products None known based on information supplied.

## 11. TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008  
Information on likely routes of exposure  
Product Information

Inhalation Specific test data for the substance or mixture is not available. Toxic by inhalation. (based on components).

Eye contact Specific test data for the substance or mixture is not available.

Skin contact Specific test data for the substance or mixture is not available. Toxic in contact with skin. (based on components).

Ingestion Specific test data for the substance or mixture is not available. Toxic if swallowed. (based on components).

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Coughing and/ or wheezing. Difficulty in breathing.

Numerical measures of toxicity

Acute toxicity

Component Information

Chemical name 2,4-Dinitrotoluene

Oral LD50 = 268 mg/kg ( Rat )

Dermal LD50 > 2500 mg/kg ( Rat )

Inhalation LC50 : -

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation No information available.

Respiratory or skin sensitisation No information available.

Germ cell mutagenicity Contains a known or suspected mutagen. Classification based on data available for ingredients. Suspected of causing genetic defects.

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed as mutagenic.

Chemical name European Union

2,4-Dinitrotoluene Muta. 2

Carcinogenicity Contains a known or suspected carcinogen. Classification based on data available for ingredients. May cause cancer.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name European Union

2,4-Dinitrotoluene Carc. 1B

Reproductive toxicity Contains a known or suspected reproductive toxin. Classification based on data available for ingredients. Suspected of damaging fertility or the unborn child.

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed as reproductive toxins.

Chemical name European Union

2,4-Dinitrotoluene Repr. 2

STOT - single exposure No information available.

STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard No information available.

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties No information available.

11.2.2. Other information

Other adverse effects No information available.

## 12. ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity Very toxic to aquatic life with long lasting effects.

Chemical name 2,4-Dinitrotoluene

Algae/aquatic plants EC50: 0.97 mg/l (96h, Algae)

Fish LC50: 23 - 25.6mg/L (96h, Pimephales promelas) LC50: 27.3 - 38mg/L (96h, Pimephales promelas) LC50: =12.8mg/L

(96h, Lepomis macrochirus) LC50: =16mg/L (96h,

Lepomis macrochirus) LC50: =32.5mg/L (96h, Pimephales promelas) LC50: >16mg/L (96h, Oryzias latipes) LC50:

>16mg/L (96h, Poecilia reticulata)

Toxicity to microorganisms

Crustacea EC50: 22.5 - 30.5mg/L (48h, Daphnia magna)

12.2. Persistence and degradability

Persistence and degradability No information available.

12.3. Bioaccumulative potential

Bioaccumulation There is no data for this product.

Component Information

Chemical name Partition coefficient

2,4-Dinitrotoluene 1.98

12.4. Mobility in soil

Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment This substance is not considered to be persistent, bioaccumulating nor toxic (PBT). This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

12.6. Endocrine disrupting properties

Endocrine disrupting properties No information available.

12.7. Other adverse effects  
No information available

### 13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from residues/unused  
products

Dispose of in accordance with local regulations. Dispose of waste in accordance with  
environmental legislation.

Contaminated packaging Do not reuse empty containers.

### 14. TRANSPORT INFORMATION

IATA

14.1 UN number or ID number UN3454

14.2 UN proper shipping name Dinitrotoluenes, solid

14.3 Transport hazard class(es) 6.1

14.4 Packing group II

Description UN3454, Dinitrotoluenes, solid, 6.1, II

14.5 Environmental hazards Yes

14.6 Special precautions for user

Special Provisions None

ERG Code 6L

IMDG

14.1 UN number or ID number UN3454

14.2 UN proper shipping name Dinitrotoluenes, solid

14.3 Transport hazard class(es) 6.1

14.4 Packing group II

Description UN3454, Dinitrotoluenes, solid, 6.1, II, Marine pollutant

14.5 Marine pollutant P

Environmental hazards Yes

14.6 Special precautions for user

Special Provisions None

EmS-No F-A, S-A No information available

14.7 Maritime transport in bulk

according to IMO instruments

No information available

RID

14.1 UN number or ID number UN3454

14.2 UN proper shipping name Dinitrotoluenes, solid

14.3 Transport hazard class(es) 6.1

14.4 Packing group II

Description UN3454, Dinitrotoluenes, solid, 6.1, II, Environmentally Hazardous

14.5 Environmental hazards Yes

14.6 Special precautions for user

Special Provisions None

Classification code T2

ADR

14.1 UN number or ID number UN3454

14.2 UN proper shipping name Dinitrotoluenes, solid

14.3 Transport hazard class(es) 6.1

14.4 Packing group II

Description UN3454, Dinitrotoluenes, solid, 6.1, II, (D/E), Environmentally Hazardous

14.5 Environmental hazards Yes

14.6 Special precautions for user

Special Provisions None

Classification code T2

Tunnel restriction code (D/E)



## 15. REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

France

Occupational Illnesses (R-463-3, France) French RG number RG 13

Water hazard class (WGK) strongly hazardous to water (WGK 3)

Netherlands Netherlands - List of Carcinogens Present

Netherlands - List of Reproductive Toxins Fertility Category 2

Poland SDS created according to the following Polish regulation: Act of February 25, 2011

on chemical substances and their mixtures (Journal of Laws of 2018, item 143, as

amended). Regulation (EC) No 1907/2006 of the European Parliament and of the

Council on the Registration, Evaluation, Authorization and Restriction of Chemicals

(REACH), establishing the European Chemicals Agency (EC) as amended. Regulation

(EC) No 1272/2008 of the European Parliament and of the Council of 16 December

2008 on classification, labeling and packaging of substances and mixtures, as

amended. Regulation of the Minister of Health of 10 August 2012 on the criteria and

method of classifying chemical substances and their mixtures (Journal of Laws of

2012, item 1018). Regulation of the Minister of Health of 20 April 2012 on labeling

packaging of hazardous substances and mixtures and some mixtures (Journal of

Laws of 2012, item 445). Regulation of the Minister of Family, Labor and Social Policy

of 12 June 2018 on the maximum allowable concentrations and intensities of factors

harmful to health in the work environment (Journal of Laws of 2018, item 1286).

Announcement of the Minister of Economy, Labor and Social Policy of August 28,

2003 on the publication of the unified text of the Ordinance of the Minister of Labor

and Social Policy on general health and safety at work regulations (Journal of Laws

of 2003, No. 169, item 1650). Regulation of the Minister of Health of 30 December

2004 on occupational safety and health related to the presence of chemical agents in

the workplace (Journal of Laws of 2005, No. 11, item 86). Act of December 14, 2012

on waste (Journal of Laws of 2013, item 21) Regulation of the Minister of Health of

December 30, 2004 on occupational health and safety related to the presence of

chemical agents in the workplace (Journal U. of 2005, No. 11, item 86). Waste Act of

December 14, 2012 (Journal of Laws of 2013, item 21). Act of 13 June 2013 on the

management of packaging and packaging waste, Journal of Laws 2013, item 888).

Government statement of September 24, 2002 - European Agreement on the

International Carriage of Dangerous Goods by Road (ADR) (Journal of Laws No. 194,

item 1629 and Journal of Laws of 2003, No. 207, item 2013 and 2014).

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Authorisations and/or restrictions on use:

This product contains one or more substance(s) subject to authorisation (Regulation (EC) No. 1907/2006 (REACH), Annex XIV)

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

DIRECTIVE (EU) 2021/1187 on the marketing and use of explosives precursors

Not applicable

applicable

Chemical name Restricted substance per REACH

Annex XVII

Substance subject to authorisation per

REACH Annex XIV

2,4-Dinitrotoluene - 121-14-2 28. X

Persistent Organic Pollutants

Not applicable

Dangerous substance category per Seveso Directive (2012/18/EU)

H2 - ACUTE TOXIC

E1 - Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not applicable

International Inventories

TSCA Contact supplier for inventory compliance status

DSL/NDL Contact supplier for inventory compliance status

EINECS/ELINCS Contact supplier for inventory compliance status

ENCS Contact supplier for inventory compliance status

IECSC Contact supplier for inventory compliance status

KECL Contact supplier for inventory compliance status

PICCS Contact supplier for inventory compliance status

AIIC Contact supplier for inventory compliance status

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

Chemical Safety Report A Chemical Safety Assessment has been carried out for this substance

## 16. OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. For lab use only!