

Chemical Safety Data Sheet MSDS / SDS

2-Chloro-4-nitrotoluene

Revision Date:2026-05-31 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name : 2-Chloro-4-nitrotoluene
CBnumber : CB9852938
CAS : 121-86-8
EINECS Number : 204-501-7
Synonyms : 2-chloro-1-methyl-4-nitrobenzene,2-chloro-4-nitrotoluene

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.
Uses advised against : none

Company Identification

Company : Chemicalbook
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone : 010-86108875

SECTION 2: Hazards identification

GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Warning

Precautionary statements

P264 Wash skin thoroughly after handling.

P273 Avoid release to the environment.

P391 Collect spillage. Hazardous to the aquatic environment

P501 Dispose of contents/container to....

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continuerinsing.

P321 Specific treatment (see ... on this label).

P332+P313 IF SKIN irritation occurs: Get medical advice/attention.

P337+P313 IF eye irritation persists: Get medical advice/attention.

Hazard statements

H320 Causes eye irritation
H411 Toxic to aquatic life with long lasting effects
H315 Causes skin irritation
H401 Toxic to aquatic life
H302 Harmful if swallowed
H319 Causes serious eye irritation

SECTION 3: Composition/information on ingredients

Substance

Product name	: 2-Chloro-4-nitrotoluene
Synonyms	: 2-chloro-1-methyl-4-nitrobenzene, 2-chloro-4-nitrotoluene
CAS	: 121-86-8
EC number	: 204-501-7
MF	: C ₇ H ₆ ClNO ₂
MW	: 171.58

SECTION 4: First aid measures

General Advice

If symptoms persist, call a physician.

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation

Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion

Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Most important symptoms and effects

None reasonably foreseeable.

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.

Notes to Physician

Treat symptomatically.

SECTION 5: Firefighting measures

Suitable Extinguishing Media

Water spray. Carbon dioxide (CO₂). Dry chemical. Chemical foam.

Extinguishing media which must not be used for safety reasons

No information available.

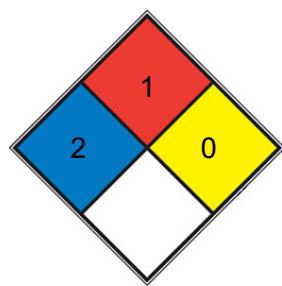
Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA 704



☒ HEALTH 2 Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g. [diethyl ether](#), ammonium phosphate, iodine)

☒ FIRE 1 Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur. Includes some finely divided suspended solids that do not require heating before ignition can occur. Flash point at or above 93.3 °C (200 °F). (e.g. [mineral oil](#), ammonia)

☒ REACT 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, [N₂](#))

☐ SPEC.

☐ HAZ.

SECTION 6: Accidental release measures

Personal Precautions

Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

Environmental Precautions

Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up

Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: Handling and storage

Handling

Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

Storage

Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

Specific Use(s)

Use in laboratories

SECTION 8: Exposure controls/personal protection

Control Parameters

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

Exposure Controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal protective equipment

Eye Protection

Goggles (European standard - EN 166)

Hand Protection

Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Nitrile rubber	See manufacturers	-	EN 374	(minimum requirement)
Neoprene	recommendations			
Natural rubber				
PVC				

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.

(Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

Recommended Filter type: Particulates filter conforming to EN 143

Small scale/Laboratory use

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended half mask:- Particle filtering: EN149:2001

When RPE is used a face piece Fit Test should be conducted

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls

Prevent product from entering drains. Do not allow material to contaminate ground water system.

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Light yellow

Physical State

Powder Solid

Odor

Odorless

Odor Threshold

No data available

pH

approx 4 - 5

Melting Point/Range

61 - 64 °C / 141.8 - 147.2 °F

Softening Point

No data available

Boiling Point/Range

260 °C / 500 °

F @ 760 mmHg

Flash Point

> 150 °C / > 302 °F Method - No information available

Evaporation Rate

Not applicable Solid

Flammability (solid,gas)

No information available

Explosion Limits

No data available

Vapor Pressure

3 mbar @ 100 °C

Vapor Density

Not applicable Solid

Specific Gravity / Density

1.3246 (rough estimate)

Bulk Density

1.3246 (rough estimate)

Water Solubility

49 mg/l (20°C)

Solubility in other solvents

acetonitrile: soluble

Partition Coefficient (n-octanol/water)

No data available

Component

log Pow

Benzene, 2-chloro-1-methyl-4-nitro- 3.2

Autoignition Temperature

473 °C / 883.4 °F

Decomposition Temperature

320 °C

Viscosity

Not applicable Solid

Explosive Properties

No information available

Oxidizing Properties

No information available

Molecular Formula

C7 H6 Cl N O2

Molecular Weight

171.58

Colour

Pale Yellow

SECTION 10: Stability and reactivity

Stability

Stable.

Hazardous Reactions

None under normal processing.

Hazardous Polymerization

Hazardous polymerization does not occur.

Conditions to Avoid

Incompatible products.

Materials to avoid

Strong oxidizing agents. Strong bases.

Hazardous Decomposition Products

Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide (CO2). Hydrogen chloride gas.

SECTION 11: Toxicological information

Product Information

Acute toxic category 4 for all endpoints is assigned due to possible Methemoglobin (MHb) formation

(a) acute toxicity;

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Benzene, 2-chloro-1-methyl-4-nitro-	LD50 = 3020 mg/kg (Rat)	LD50 > 2000 mg/kg (Rat)	LC50 > 528 mg/m3 (Rat) 4 h

(b) skin corrosion/irritation;

No data available

(c) serious eye damage/irritation;

No data available

(d) respiratory or skin sensitization;

Respiratory

No data available

Skin

No data available

(e) germ cell mutagenicity;

No data available

(f) carcinogenicity;

No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity;

No data available

(h) STOT-single exposure;

No data available

(i) STOT-repeated exposure;

Category 2

Target Organs

No information available.

(j) aspiration hazard;

Not applicable

Solid

Other Adverse Effects

The toxicological properties have not been fully investigated.

Symptoms / effects, both acute and delayed

SECTION 12: Ecological information

Ecotoxicity effects

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Benzene, 2-chloro-1-methyl-4-nitro-	LC0 = 34mg/l, LC100 = 35 mg/l (96h) Zebra fish	EC50 = 10 mg/l (24h)		EC50 = 3.3 mg/L 5 min EC50 = 3.9 mg/L 15 min

Persistence and Degradability

Persistence

Persistence is unlikely.

Component	Degradability
Benzene, 2-chloro-1-methyl-4-nitro- 121-86-8 (<= 100)	75% (28d) OECD 301D

Degradation in sewage

Contains substances known to be hazardous to the environment or not degradable in waste

treatment plant

water treatment plants.

Bioaccumulative Potential

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Benzene, 2-chloro-1-methyl-4-nitro-	3.2	No data available

Mobility in soil

The product is water soluble, and may spread in water systems Will likely be mobile in the environment due to its water solubility Highly mobile in soils

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

Persistent Organic Pollutant

This product does not contain any known or suspected substance

Ozone Depletion Potential

This product does not contain any known or suspected substance

SECTION 13: Disposal considerations

Waste from Residues/Unused Products

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging

Dispose of this container to hazardous or special waste collection point.

Other Information

Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not let this chemical enter the environment.

SECTION 14: Transport information

Road and Rail Transport

UN-No

UN3077

Proper Shipping Name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Technical Shipping Name

2-Chloro-4-nitrotoluene

Hazard Class

9

Packing Group

III

IMDG/IMO

UN-No

UN3077

Proper Shipping Name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Technical Shipping Name

2-Chloro-4-nitrotoluene

Hazard Class

9

Packing Group

III

IATA

UN-No

UN3077

Proper Shipping Name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Technical Shipping Name

2-Chloro-4-nitrotoluene

Hazard Class

9

Packing Group

III

Special Precautions for User

No special precautions required

SECTION 15: Regulatory information

International Inventories

China, X = listed, U.S.A. (TSCA), Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Australia (AICS), Korea (KECL), China (IECSC), Japan (ENCS), Philippines (PICCS), Taiwan (TCSI), Japan (ISHL), New Zealand (NZIoC), Japan (ISHL).

Component	The Inventory of Hazardous Chemicals (2015 Edition)	List of dangerous goods GB 12268 - 2012	TCSI	IECSC	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	AICS	KECL
Benzene, 2-chloro-1-methyl-4-nitro-	-	-	X	X	204-501-7	X	-	X	X	X	-	-

National Regulations

SECTION 16: Other information

Revision Summary

SDS sections updated, 2, 3, 9, 11, 12, 14, 15.

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Legend**CAS**

Chemical Abstracts Service

TSCA

United States Toxic Substances Control Act Section 8(b)

Inventory

EINECS/ELINCS

European Inventory of Existing Commercial Chemical

Substances/EU List of Notified Chemical Substances

DSL/NDSL

Canadian Domestic Substances List/Non-Domestic

Substances List

PICCS

Philippines Inventory of Chemicals and Chemical Substances

ENCS

Japanese Existing and New Chemical Substances

IECSC

Chinese Inventory of Existing Chemical Substances

AICS

Australian Inventory of Chemical Substances

KECL

Korean Existing and Evaluated Chemical Substances

NZIoC

New Zealand Inventory of Chemicals

WEL

Workplace Exposure Limit

TWA

Time Weighted Average

ACGIH

American Conference of Governmental Industrial Hygienists

IARC

International Agency for Research on Cancer

DNEL

Derived No Effect Level

PNEC

Predicted No Effect Concentration

RPE

Respiratory Protective Equipment

LD50

Lethal Dose 50%

LC50

Lethal Concentration 50%

EC50

Effective Concentration 50%

NOEC

No Observed Effect Concentration

POW

Partition coefficient Octanol:Water

PBT

Persistent, Bioaccumulative, Toxic

vPvB

very Persistent, very Bioaccumulative

ICAO/IATA

International Civil Aviation Organization/International Air

Transport Association

IMO/IMDG

International Maritime Organization/International Maritime

Dangerous Goods Code

ADR

European Agreement Concerning the International Carriage of

Dangerous Goods by Road

MARPOL

International Convention for the Prevention of Pollution from

Ships

OECD

Organisation for Economic Co-operation and Development

ATE

Acute Toxicity Estimate

BCF

Bioconcentration factor

VOC

(Volatile Organic Compound)

Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

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