

GPS Safety Summary

2,4-Dinitro-1-chlorobenzene Solid

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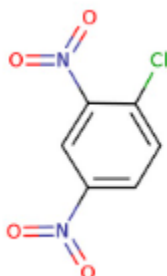
CL-4: PUBLIC

1. General Statements

2,4-Dinitro-1-chlorobenzene is a Yellow crystalline solid. It is Slightly pungent. Insoluble in water. Soluble in organic solvents like ethanol, acetone, and ether. It is a combustible substance, poorly flammable. When sparked, especially under confinement, the substance can detonate like an explosive. Practically insoluble in water. Acute or chronic health hazards result from the substance. The substance is hazardous to the aquatic environment.

2. Chemical identification.

Name : 2,4-Dinitro-1-chlorobenzene Solid
CAS number(s) : 97-00-7
EC number : 202-551-4
Molecular formula : $C_6H_3ClN_2O_4$
Structure :



3. Uses and Benefits

It is used in the production of azo dyes and other colored compounds by acting as a precursor in dye synthesis. It acts as a building block for herbicides, insecticides, and fungicides. Involved in the manufacture of accelerators and stabilizers used in rubber processing. It is also Used as a reagent for the detection and determination of nicotinic acid, nicotinamide, pyridine compounds and other amines. Substrate for glutathione-S-transferases.

4. Physical / chemical properties

Property	Value
Physical state :	Solid
Colour :	Colourless to yellow
Odour :	Almond-like Odour
pH :	NA
Melting point :	≈ 50 °C
Boiling point :	315 °C Atm. press.: 760 Torr
Flash point :	194 °C Atm. press.: 760 Torr

GPS Safety Summary

2,4-Dinitro-1-chlorobenzene Solid

CL-4:PUBLIC

Density :	1680 kg/m3 (20 °C)
Solubility in Water:	Insoluble in water.

5. Health Effects

Effect Assessment	Result
Acute toxicity (Oral / inhalation / dermal)	Harmful if swallowed
Irritation / corrosion Skin / eye/ respiratory tract	Causes skin irritation,Causes serious eye damage
Respiratory or skin sensitisation	Fatal in contact with skin,- May cause an allergic skin reaction
Toxicity after repeated exposure Oral / inhalation / dermal	NA
Genotoxicity / Mutagenicity	NA
Carcinogenicity	NA
Toxicity for reproduction	NA

6. Environmental Effects

Effect Assessment	Result
Aquatic toxicity	Yes
Fate and behavior	Result
Persistence and degradability	Non degradable in the soil. Not readily biodegradable in water.
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

7. Exposure

Human health

2,4-Dinitro-1-chlorobenzene Solid Harmful if swallowed.Causes skin irritation,Causes serious eye damage.Fatal in contact with skin,- May cause an allergic skin reaction.But the exposure must be kept as minimum as possible by the use of appropriate risk management measures suitable collective and personal protective equipment, good industrial hygiene practices and risk communication through appropriate training of workers.Careless handling or accidental spillage of the chemical could result in exposure to potentially hazardous levels of chemicals.Industrial workers should ensure that they follow the advice found in the extended safety data sheet (SDS).

GPS Safety Summary

2,4-Dinitro-1-chlorobenzene Solid

CL-4:PUBLIC

Environment:

Care should be taken to avoid releases of these products to sewage, drainage systems and water bodies. Spillage shall be quickly collected in the event of an accidental release. More information about release measures and accidental release measures are available in the extended safety data sheet.

8. Risk Management Recommendations

Human health measures

Organizational	A basic standard of occupational hygiene is recommended. Ensure operatives are well informed of the hazards and trained to minimise exposures. Ensure regular inspection and maintenance of equipment and machines. Handle and store according to the indications of the Safety Data Sheet.	
Protection	Eye protection:	Safety glasses
	Skin and body protection:	Wear suitable protective clothing
	Respiratory protection:	In case of insufficient ventilation, wear suitable respiratory equipment.
Engineering controls	Ensure good ventilation of the work station.	
Environment protective measures		
Avoid release to the environment		

9. First-aid measures

First-aid measures after inhalation: Remove the person to fresh air and keep them comfortable for breathing.

First-aid measures after skin contact : Wash skin with plenty of water. Remove/Take off immediately all contaminated clothing. Call a physician immediately.

First-aid measures after eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

First-aid measures after ingestion : Rinse mouth. Call a poison center or a doctor if you feel unwell.

10. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam.

Unsuitable extinguishing media : Water (quick-acting extinguisher, reel); risk of puddle expansion. Water; risk of puddle expansion.

Special hazards arising from the substance or mixture

GPS Safety Summary

2,4-Dinitro-1-chlorobenzene Solid

CL-4:PUBLIC

Hazardous decomposition products in case of fire:On burning: release of toxic and corrosive gases/vapours (nitrous vapours, hydrogen chloride, carbon monoxide - carbon dioxide).

Advice for firefighters

Precautionary measures fire:Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.

Firefighting instructions :Fight fire from safe distance and protected location. Do not enter a fire area without proper protective equipment, including respiratory protection.

11. Accidental release measures

Protective equipment :Gloves (EN 374). Face shield (EN 166). Protective clothing (EN 14605 or EN 13034). Dust cloud production: self-contained breathing apparatus (EN 136 + EN 137). Dust cloud production: dust-tight suit (EN 13982).

Environmental precautions:Avoid release to the environment.

For containment : Collect spillage.

12. Disposal consideration

Regional legislation (waste) : Disposal must be done according to official regulations.

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Sewage disposal recommendations : Disposal must be done according to official regulations.

13. Handling and storage

Precautions for safe handling: Ensure good ventilation of the work station. Do not get in eyes, on skin, or on clothing. Wear personal protective equipment. Avoid breathing dust/fume/gas/mist/vapors/spray.

Hygiene measures: Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

GPS Safety Summary

2,4-Dinitro-1-chlorobenzene Solid

CL-4:PUBLIC

14. Classification and Labeling

Hazard pictograms (GHS US)



Signal word (GHS US)

: Danger

Hazard statements (GHS US)

: H302 - Harmful if swallowed
H310 - Fatal in contact with skin
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects
Precautionary statements (GHS US) : P261 - Avoid breathing dust, fume, gas, mist, vapors, spray.
P262 - Do not get in eyes, on skin, or on clothing.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P272 - Contaminated work clothing must not be allowed out of the workplace.
P273 - Avoid release to the environment.
P280 - Wear protective gloves.
P301+P312 - If swallowed: Call a poison center or doctor if you feel unwell.
P302+P352 - If on skin: Wash with plenty of water.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 - Immediately call a poison center or doctor.
P321 - Specific treatment (see supplemental first aid instruction on this label).
P330 - Rinse mouth.
P333+P313 - If skin irritation or rash occurs: Get medical advice or attention.
P361+P364 - Take off immediately all contaminated clothing and wash it before reuse.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P391 - Collect spillage.
P405 - Store locked up.
P501 - Dispose of contents and/or container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulations.

15. Conclusion

2,4-Dinitro-1-chlorobenzene is a yellow crystalline solid with limited water solubility but good solubility in organic solvents. It is widely used as an intermediate in the synthesis of dyes, agrochemicals, and rubber processing additives. Due to its chemical nature, it exhibits combustible properties and can pose explosion risks under certain conditions. The compound presents significant health hazards, including acute toxicity if ingested or inhaled, serious skin and eye irritation, and potential allergic reactions upon skin contact. It is also harmful to the aquatic environment, with poor biodegradability and potential environmental persistence. The exposure must be kept as minimum as possible by the use of appropriate risk management measures as suitable collective and personal protective equipment, good industrial hygiene practices and risk communication through appropriate training of workers.

GPS Safety Summary

2,4-Dinitro-1-chlorobenzene Solid

CL-4:PUBLIC

16. Contact Information within company

Manufacturer

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This GPS safety summary is intended to give general information about the health, safety and environment and not intended to provide in-depth details. To obtain the most accurate and current information, consult the appropriate Safety Data Sheet (SDS) prior to use of the material named herein.