

GPS Safety Summary

1-chloro-4-nitrobenzene Liquid

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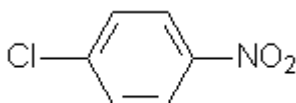
CL-4: PUBLIC

1. General Statement

1-chloro-4-nitrobenzene Combustible Liquid, poorly flammable. Slightly soluble in water. Low or very low-volatile. Acute or chronic health hazards result from the substance. The substance is hazardous to the aquatic environment.

2. Chemical identity

Name : 1-chloro-4-nitrobenzene Liquid
CAS number : 121-72-2
EC number : 202-809-6
Molecular formula : C₆H₄ClNO₂
Structure :



3. Uses and Benefits

1-chloro-4-nitrobenzene is primarily used as an intermediate in the synthesis of various chemicals. The nitro and chloro groups make it a versatile starting material for further chemical transformations. It is used as a building block in the synthesis of certain pharmaceutical compounds. Often involved in producing intermediates that lead to active pharmaceutical ingredients (APIs). It is also used in producing rubber additives and vulcanization accelerators to improve the properties of rubber.

4. Physical / chemical properties

Property	Value
Physical state :	Liquid
Colour :	Light yellow to yellow-green
Odour :	Aromatic odour. Sweet odour.
pH :	7
Melting point	83 °C
Boiling point :	242 °C
Flash point :	127 °C (Closed cup, 1013 hPa)
Density :	1520 kg/m ³ (22 °C)
Solubility in Water:	0.02 g/100ml (20 °C)

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5. Health Effects

Effect Assessment	Result
Acute toxicity (Oral / inhalation / dermal)	Toxic if swallowed, in contact with skin or if inhaled
Irrit/ corrosion Skin / eye/ respiratory tractation	NA
Respiratory or skin sensitisation	NA
Toxicity after repeated exposure Oral / inhalation / dermal	May cause damage to organs through prolonged or repeated exposure.
Genotoxicity / Mutagenicity	Suspected of causing genetic defects.
Carcinogenicity	Suspected of causing cancer.
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. No inhibition of biodegradation process in the soil. Not readily biodegradable in water.
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

7. Exposure

Human health

1-Chloro-4-nitrobenzene is rapidly absorbed via skin, gastrointestinal tract or respiratory tract and distributed in the tissue predominantly in fat, blood cells, skeletal muscles, liver and kidney. Most of the substance was excreted with the urine followed by excretion with feces. It is suspected of causing genetic defects & cancer. Skin rash/inflammation. Headache. Nausea. Paleness. Change in the hemogramme/blood composition. Enlargement/affection of the liver. Affection of the renal tissue are the Chronic symptoms.

The probability of exposure to workers is expected to be low because this product is manufactured in an enclosed controlled environment and is transported in well sealed containers. Workers may be exposed during (un)loading, mixing, sampling, analysis or maintenance operations and particularly in case of batch processes. 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. 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).

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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 inadequate ventilation] wear respiratory protection.
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. Take medical advice.

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

First-aid measures after eye contact : Rinse eyes with water as a precaution.

First-aid measures after ingestion : Rinse mouth. Call a physician immediately.

10. Fire-fighting measures

Extinguishing media

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

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

Hazardous decomposition products in case of fire : On burning: release of toxic and corrosive gases/vapours (chlorine, nitrous vapours, hydrogen chloride, phosgene, dioxin).

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(EN13982).

Emergency procedures: Ventilate spillage area. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with skin, eyes and clothing.

For containment : Collect spillage. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leaks without risks if possible.

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 : Obtain special instructions before use. Do not handle it until all safety precautions have been read and understood. Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Use only outdoors or in a well-ventilated area.

Hygiene measures :Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product.Always wash hands after handling the product.

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14. Classification and Labeling

Hazard pictograms (GHS US)



Signal word (GHS US)

: Danger

Hazard statements (GHS US)

: H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled

H341 - Suspected of causing genetic defects.

H351 - Suspected of causing cancer.

H373 - May cause damage to organs through prolonged or repeated exposure

H411 - Toxic to aquatic life with long lasting effects

Precautionary statements (GHS US)

: P201 - Obtain special instructions before use.

P202 - Do not handle until all safety precautions have been read and understood.

P260 - Do not breathe dust, fume, gas, mist, vapours, spray.

P264 - Wash hands, forearms and face thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P271 - Use only outdoors or in a well-ventilated area.

P273 - Avoid release to the environment.

P280 - Wear protective gloves, protective clothing, eye protection, face protection, and hearing protection.

P301+P310 - If swallowed: Immediately call a poison center or doctor.

P302+P352 - If on skin: Wash with plenty of water.

P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.

P308+P313 - If exposed or concerned: Get medical advice/attention.

P311 - Call a poison center or doctor.

P312 - Call a poison center or doctor if you feel unwell.

P314 - Get medical advice or attention if you feel unwell.

P321 - Specific treatment (see supplemental first aid instruction on this label).

P330 - Rinse mouth.

P361+P364 - Take off immediately all contaminated clothing and wash it before reuse.

P391 - Collect spillage.

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

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

1-Chloro-4-nitrobenzene is a light yellow to yellow-green liquid primarily used as an intermediate in the synthesis of pharmaceuticals and rubber additives. It is a combustible liquid with low volatility and slight water solubility. Due to its toxic nature, exposure to this chemical can cause serious acute and chronic health effects including toxicity if ingested, inhaled, or contacted with skin, possible genetic defects, and cancer risks. It is also harmful to aquatic environments and persistent in soil without easy biodegradability. Handling 1-chloro-4-nitrobenzene requires strict adherence to safety measures, including the use of personal protective equipment (PPE), proper ventilation, and hygienic practices. In case of accidental release, immediate containment and proper disposal according to regulations are essential to prevent environmental contamination. 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.

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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.