

1. General Statement:

1-chloro-4-nitrobenzene is an organic compound. It is a pale yellow solid. This is a common intermediate in the production of a number of industrially useful compounds, including common antioxidants found in rubber.

2. Chemical identity

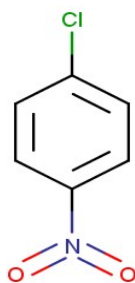
Name : 1-chloro-4-nitrobenzene

CAS number(s) : 100-00-5

EC number : 202-809-6

Molecular formula : C₆H₄ClNO₂

Structure



3. Uses and Benefits

1-chloro-4-nitrobenzene is an intermediate in the preparation of a variety of derivatives. Nitration gives 2,4-dinitrochlorobenzene, and 3,4-dichloronitrobenzene. Reduction with iron metal gives 4-chloroaniline. It is used in the manufacture of drugs, agricultural and rubber chemicals, oil additives, and other chemicals.

4. Physical / chemical properties

Property	Value
Physical state :	Solid
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)

GPS Safety Summary

1-chloro-4-nitrobenzene

CL-4: PUBLIC

Density :	1520 kg/m ³ (22 °C)
Solubility in Water:	0.02 g/100ml (20 °C)
Viscosity, dynamic :	1.07 mPa·s (83.5 °C)

5. Health Effects

Effect Assessment	Result
Acute toxicity (Oral / inhalation / dermal)	Toxic if swallowed , inhaled & in contact with skin.
Irritation / corrosion Skin / eye/ respiratory tract	No
Respiratory or skin sensitisation	No
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	May cause cancer.
Toxicity for reproduction	No

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).

GPS Safety Summary

1-chloro-4-nitrobenzene

CL-4: PUBLIC

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 suspected of causing genetic defects & May cause 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).

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, Face shield (EN 166). In case of dust production: protective goggles (EN 166)
	Skin and body protection:	Wear suitable protective clothing, Protective clothing (EN 14605 or EN 13034). In case of dust production: head/neck protection. In case of dust production: dustproof clothing (EN13982)

GPS Safety Summary

1-chloro-4-nitrobenzene

CL-4: PUBLIC

	Respiratory protection:	Wear appropriate mask. Self-contained breathing apparatus,Dust production: dust mask with filter type P3
Engineering controls	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.Ensure good ventilation of the work station.	
Environment protective measures		
Product must not be released into water without pre-treatment. Neutralize wastewater before release.		

9. First-aid measures

First-aid measures after inhalation: Remove the victim into fresh air. Immediately consult a doctor/medical service.

First-aid measures after skin contact: Wash immediately with lots of water. Do not apply (chemical) neutralizing agents without medical advice. Soap may be used. Consult a doctor/medical service.

First-aid measures after eye contact: Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply (chemical) neutralizing agents without medical advice. Take the victim to an ophthalmologist if irritation persists.

First-aid measures after ingestion: Rinse mouth with water. Give nothing to drink. Immediately consult a doctor/medical service. Call Poison Information Centre. Ingestion of large quantities: immediately to hospital. Take the container/vomit to the doctor/hospital.

10. Fire-fighting measures

Extinguishing media:

Suitable extinguishing media: Quick-acting ABC powder extinguisher. Quick-acting BC powder extinguisher. Quick-acting class B foam extinguisher. Quick-acting CO2 extinguisher. Class B foam (not alcohol-resistant).

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).

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.

GPS Safety Summary

1-chloro-4-nitrobenzene

CL-4: PUBLIC

Firefighting instructions : Cool tanks/drums with water spray/remove them into safety. Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it

11. Accidental release measures

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

Emergency procedures:Mark the danger area. Prevent dust cloud formation. No naked flames. Wash contaminated clothes. In case of reactivity hazard: consider evacuation.

For containment:Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust clouds with water spray. Take account of toxic/corrosive precipitation water. Powdered form: no compressed air for pumping over spills.

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:Do not discharge into drains or the environment. Dispose of at authorized waste collection point. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals.

13. Handling and storage

Precautions for safe handling: Avoid raising dust. Keep away from naked flames/heat. In a finely divided state: use spark-/explosion proof appliances. Finely divided: keep away from ignition sources/sparks.Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements.Remove contaminated clothing immediately. Clean contaminated clothing. Keep the substance free from contamination. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Powdered form: no compressed air for pumping over.Keep the container tightly closed.

Hygiene measures : Observe strict hygiene.

GPS Safety Summary

1-chloro-4-nitrobenzene

CL-4: PUBLIC

14. Classification and Labeling

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)

:



GHS06



GHS08



GHS09

Signal word (CLP)

: Danger

Hazard statements (CLP)

: 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 (CLP)

: P201 - Obtain special instructions before use.

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

P260 - Do not breathe dust.

P264 - Wash hands thoroughly after handling.

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

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

15. Conclusion

1-chloro-4-nitrobenzene is a pale yellow solid. This is a common intermediate in the production. 1-Chloro-4-nitrobenzene is rapidly absorbed via skin, gastrointestinal tract or respiratory tract. It is suspected of causing genetic defects & May cause cancer. 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.

16. Contact Information within company

Manufacturer

Aarti Industries Limited

Udyog Kshetra, 2nd Floor, Mulund Goregaon Link Road, Mulund (West)

400080 Mumbai - India

T +91-22-6797-6666 - F +91-22-2565 3234

info@aarti-industries.com - www.aarti-industries.com

This GPS safety summary is intended to give general information about the health, safety and environmental and not intended to provide in-depth details. To obtain the most accurate and current

GPS Safety Summary

1-chloro-4-nitrobenzene

CL-4: PUBLIC

information, consult the appropriate Safety Data Sheet (SDS) prior to use of the material named herein.