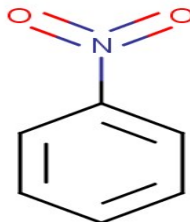


## 1. General Statement

Nitrobenzene is an oily yellow liquid with an almond-like odor. It may be pale yellow-brown in appearance. It dissolves only slightly in water, but very easily in some other chemicals. Nitrobenzene is produced in large quantities for industrial use.

## 2. Chemical identity

Name : Nitrobenzene  
CAS number(s) : 98-95-3  
EC number : 202-716-0  
Molecular formula : C<sub>6</sub>H<sub>5</sub>NO<sub>2</sub>  
Structure :



## 3. Uses and Benefits

Nitrobenzene is used primarily in the production of aniline, but it is also used as a solvent and as an ingredient in metal polishes and soaps. Nitrobenzene is also used as a solvent in petroleum refining, as a solvent in the manufacture of cellulose ethers and cellulose acetate

## 4. Physical / chemical properties

Property	Value
Physical state :	Liquid
Colour :	Colourless to dark brown.
Odour :	Almond odour. Oil-like odour.
pH :	8 (0.1 %)
Melting point	5 °C
Boiling point :	211 °C (1013 hPa)
Flash point :	88 °C (1013 hPa)

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Flammability (solid, gas) :	No data available
Vapour pressure :	0.2 hPa (20 °C)
Density :	1200 kg/m <sup>3</sup> (20 °C)
Water:	0.19 g/100ml (20 °C, EU Method A.6: Water solubility)

### 5. Health Effects

Effect Assessment	Result
Acute toxicity (Oral / inhalation / dermal )	Toxic if swallowed,in contact with skin & Toxic if inhaled.
Irritation / corrosion Skin / eye/ respiratory tract	NA
Respiratory or skin sensitisation	NA
Toxicity after repeated exposure Oral / inhalation / dermal	Causes damage to organs (blood) through prolonged or repeated exposure.
Genotoxicity / Mutagenicity	NA
Carcinogenicity	Suspected of causing cancer.
Toxicity for reproduction	May damage fertility.

### 6. Environmental Effects

Effect Assessment	Result
Aquatic toxicity	Yes
Fate and behavior	<b>Result</b>
Persistence and degradability	Biodegradable in the soil. Inhibition of nitrification. Not readily biodegradable in water.
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

### 7. Exposure

#### Human health

The substance May cause cancer and May damage fertility. Nitrobenzene can cause a wide variety of harmful health effects to exposed persons. Direct contact of small amounts of nitrobenzene with the skin or eyes may cause mild irritation. Repeated exposures to a high concentration of nitrobenzene can result in a blood condition called methemoglobinemia. This condition affects the ability of the blood to carry oxygen. Following such an exposure, the skin may turn a bluish color. This may be accompanied by nausea, vomiting

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and shortness of breath. Effects such as headache, irritability, dizziness, weakness, and drowsiness may also occur. If the exposure level is extremely high, nitrobenzene can cause coma and possibly death unless prompt medical treatment is received.

Consuming alcoholic beverages during nitrobenzene exposure may increase the harmful effects of nitrobenzene. In studies with laboratory animals, a single dose of nitrobenzene fed to male rats resulted in damage to the testicles and decreased levels of sperm. This suggests that decreased fertility may be a concern in humans.

The most likely route of human exposure (workers) is through skin. In industrial settings, ingestion is not an anticipated route of exposure. 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

Substance is very toxic to aquatic life with long lasting effects. 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

<b>Organizational</b>	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.	
<b>Protection</b>	Eye protection:	Safety glasses, Face shield (EN 166)
	Skin and body protection:	Wear suitable protective clothing, Protective clothing (EN 14605 or EN 13034)
	Respiratory protection:	Wear an appropriate mask. Self-contained breathing apparatus, Mist formation: aerosol mask with filter type P3. Full face mask with filter type A at conc. in air > exposure limit. High vapour/gas concentration: compressed air apparatus (EN 136 + EN 137)

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<b>Engineering controls</b>	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.
<b>Environment protective measures</b>	
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. Doctor: administration of corticoid spray. Immediately consult a doctor/medical service.

**First-aid measures after skin contact** : Wash immediately with lots of water. Soap may be used. Do not apply (chemical) neutralizing agents without medical advice. Remove clothing before washing. Take the victim to a doctor if irritation persists.

**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. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Do not apply (chemical) neutralizing agents without medical advice. 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.

Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : On burning: release of toxic and corrosive gases/vapours (nitrous vapours, 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.

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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). Large spills/in enclosed spaces: compressed air apparatus (EN 136 + EN 137). Large spills/in enclosed spaces: gas-tight suit (EN 943).

**Environmental precautions:** Prevent soil and water pollution. Prevent spreading in sewers.

**For containment** : Contain released product, pump into suitable containers. Plug the leak, cut off the supply.Dam up the liquid spill. Heat exposure: dilute toxic gas/vapour with water spray. Take account of toxic/corrosive precipitation water.

### 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. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. 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** : Keep away from naked flames/heat. At temperature > flashpoint: use spark/explosion proof appliances. 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. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Keep the container tightly closed.

**Hygiene measures** : Always wash hands after handling the product. Remove contaminated clothes. Wear personal protective equipment.

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### 14. Classification and Labeling

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

Hazard pictograms (CLP)



Signal word (CLP)

: Danger

Hazard statements (CLP)

: H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled.  
H351 - Suspected of causing cancer.  
H360F - May damage fertility.  
H372 - Causes damage to organs (blood) through prolonged or repeated exposure.  
H412 - Harmful 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/fume/gas/mist/vapours/spray.  
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

Nitrobenzene is an oily yellow liquid. It may be pale yellow-brown in appearance. The substance May cause cancer and May damage fertility. Nitrobenzene can cause a wide variety of harmful health effects to exposed persons. Substance is very toxic to aquatic life with long lasting effects. Care should be taken to avoid releases of these products to sewage, drainage systems and water bodies. 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.

### 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

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