

Nitrobenzene

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

| | |
|----------------------------|------------------------------------|
| Chemical name: | Nitrobenzene |
| EC number: | 202-716-0 |
| CAS no. | 98-95-3 |
| Index no. | 609-003-00-7 |
| Registration number: | 01-2119615439-35-0000 |
| Chemical characterization: | Organic mono constituent substance |

1.2 Relevant identified uses of the substance/mixture and uses advised against

Relevant identified uses:

Nitrobenzene has industrial and professional uses such as the manufacture of intermediate chemical products.

Nitrobenzene is an intermediate, handled under strictly controlled conditions

1.3 Details of the supplier of the safety data sheet

| | |
|------------|--|
| Company: | BONDALTI CHEMICALS, SA Rua do Amoníaco Português, nº 10 Beduído 3860-680 Estarreja - Portugal |
| Telephone: | +351 234 810 300 |
| Fax: | +351 234 810 361 |
| Web page: | www.bondalti.com |
| Contact: | Maria José Alves |
| E-mail: | fds@bondalti.com |

1.4 Emergency telephone number

| | |
|--------------------------------------|--|
| BONDALTI CHEMICALS, SA Telephone: | +351 234 810 300 (24 hours/day - 7 days/week) |
| Fax: | +351 234 810 361 |
| Portuguese emergency number | 112 |
| SOS – Poisons Centre | In England and Wales: NHS 111 - dial 111 In Scotland: NHS 24 - dial 111 In North Ireland: Contact local GP or pharmacist during normal hours; In Republic of Ireland: 01 809 2166 United States of America: 1-800-222-1222 |

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SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Regulation (EC) No 1272/2008

| Hazard class | Hazard category | Hazard Statements |
|--|-------------------|---|
| Reproductive toxicity | Repr. 1B | H360F: May damage fertility |
| Acute Toxicity - Oral | Acute Tox. 3 | H301: Toxic if swallowed |
| Acute Toxicity - Dermal | | H311: Toxic in contact with skin |
| Acute Toxicity - Inhalation | | H331: Toxic if inhaled |
| Carcinogenicity | Carc. 2 | H351: Suspected of causing cancer |
| Specific target organ toxicity — repeated exposure | STOT RE 1 | H372: Causes damage to blood through prolonged or repeated exposure by inhalation |
| Hazardous to the aquatic environment | Aquatic Chronic 3 | H412: Harmful to aquatic life with long lasting effects |

2.2 Label Elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictogram:



GHS06



GHS08

Signal word: Danger

Hazard statements:
 H301: Toxic if swallowed
 H311: Toxic in contact with skin
 H331: Toxic if inhaled
 H351: Suspected of causing cancer
 H360F: May damage fertility
 H372: Causes damage to blood through prolonged or repeated exposure by inhalation
 H412: Harmful to aquatic life with long lasting effects

Precautionary
 P260: Do not breathe dust/fume/gas/mist/vapours/spray

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recommendations: P273: Avoid release to the environment
P280: Wear protective gloves/protective clothing/eye protection/face protection
P501: Dispose of contents and container to licensed, permitted incinerator, or other thermal destruction device [in accordance with national regulations](#)
P304+P340: IF INHALED: [Remove person to fresh air and keep comfortable for breathing](#)
P308+P313: IF exposed or concerned: Get medical advice

2.3 Other Hazards

[The substance is not classified as PBT and vPvB.](#)

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**3.1 Substances****Hazardous substance**

| Chemical Name | CAS No. | EC No. | REACH No. | Concentration [%] |
|---------------|---------|-----------|-----------------------|-------------------|
| Nitrobenzene | 98-95-3 | 202-716-0 | 01-2119615439-35-0000 | ≥99.96% |

SECTION 4: FIRST AID MEASURES**4.1 Description of first aid measures**

| | |
|--------------------------|---|
| General advice: | Remove victims from the danger zone without endangering your own safety. Remove contaminated or soaked clothing (including underwear and shoes) immediately. |
| If inhaled: | Bring accident victims out into the fresh air. If patient has difficulty in breathing, administer oxygen; keep the patient calm and warm. Call a physician immediately. |
| In case of skin contact: | After contact with skin, wash immediately with plenty of soap and water. Apply protective bandage with sterile gauze. Call a physician immediately. |
| In case of eye contact: | Hold the eyes open and rinse with preferably lukewarm water for a sufficiently long period of time (at least 10 minutes). Contact an ophthalmologist. |
| If swallowed: | If product is swallowed DO NOT induce the patient to vomit, medical advice is required. Make patient drink water and rinse out mouth several times (only if injured person is conscious). |

Nitrobenzene**First aider protection**

| | |
|-------------------------|---|
| Respiratory protection: | Protection mask with suitable filter (ABEK). At higher concentrations or under uncertain conditions a respirator with independent air supply must be used. |
| Hand protection: | Use protective gloves; EN 374-3 Suitable materials: Nitrile rubber/Nitrile latex - NBR (≥ 0.35 mm); Butyl rubber - Butyl (0,5 mm); Fluoro carbon rubber - FKM (0,4 mm) Textile or leather gloves are completely unsuitable. |
| Eye protection: | Use chemical resistant goggles. Wear glasses with side protection. |

4.2 Most important symptoms and effects, both acute and delayed

Methaemoglobinaemia and cyanosis are the most prominent clinical symptoms.

Toxicity on the haematopoietic system probably initiated by methemoglobin production was seen as the primary effect and related secondary adverse effects occurred in the peripheral blood, bone marrow, spleen, liver and kidneys.

Clinical (cyanosis), haematological (decrease of RBC counts, haematocrit, and haemoglobin) and biochemistry examinations (elevated total bilirubin) indicated that nitrobenzene caused haemolytic anemia.

Because of the primary function of the spleen in the degradation process of altered/damaged erythrocytes, haematopoiesis, haemosiderosis and congestion were the most predominant lesions in the spleen.

4.3 Indication of any immediate medical attention and special treatment needed

Basic first aid, decontamination, symptomatic treatment.

SECTION 5: FIREFIGHTING MEASURES**5.1 Extinguishing media**

| | |
|---------------------------------|--|
| Suitable extinguishing media: | Carbon dioxide (CO ₂), foam, extinguishing powder, in cases of larger fires, water spray should be used. |
| Unsuitable extinguishing media: | High volume water jet |

5.2 Special hazards arising from the substance or mixture

[Burning releases carbon monoxide, carbon dioxide, oxides of nitrogen and traces of hydrogen cyanide.](#)

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5.3. Advice for firefighters

- In the event of fire and/or explosion do not breathe fumes.
- During fire-fighting respirator with independent air-supply and airtight garment is required.
- Fight fire in early stages if safe to do so.
- Containers at risk from fire should be cooled with water and, if possible, removed from the danger area.
- Do not allow contaminated extinguishing water to enter the soil, ground-water or surface waters

| | |
|---|--|
| Special protective equipment for fire-fighters: | Wear self-contained breathing apparatus. In case of violent hazardous effect: Wear a special tightly sealed suit. |
|---|--|

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

- Put on protective equipment.
- Evacuate area.
- Keep away from sources of ignition.
- Ensure adequate ventilation/exhaust extraction.
- Keep unauthorized persons away.

6.1.2 For emergency responders

- Use suitable personal protective equipment (e.g.: chemical protection suit; goggles, protective footwear, gloves and suitable respiratory protective equipment)

6.2 Environmental precautions

- Avoid escape into water, drainage, sewer, or the ground.
- Do not flush into surface water or into sanitary sewer system.
- If the product contaminates rivers, lakes or sewers, inform the responsible authorities.

6.3 Methods and material for containment and cleaning up

6.3.1 - Contain the spill with protective barriers.

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- Cover the sewer exits.

6.3.2 - Take up with absorbent for chemicals or, if necessary, with dry sand.

- Fill into labeled, sellable containers. Also place used cleaning materials into closable receptacles.
- Prevent spread of the liquid.
- Absorb any spilt liquid with an absorbent (e.g. diatomite, vermiculite, sand) and dispose of according to regulations. Place used cleaning materials into closable receptacles.

6.3.3 - Afterwards ventilate area and wash spill site.

6.4 Reference to other sections

- See sections 7 and 8 for protective measures.
- See section 13 on waste treatment.

SECTION 7: HANDLING AND STORAGE

- Handle in closed, grounded apparatus. Ensure proper ventilation and including at floor level.
- Make sure all pipelines, tanks and equipment are leakproof.
- Organize work procedures so that workers are not exposed to the effects of the products. Vent waste air only via suitable separators or scrubbers.
- Explosion protection required. Precautions should generally be taken against electrostatic charges according to the equipment used and the way the product is handled and packaged.
- The personal protective measures described below must be observed. Contact with skin and eyes and inhalation of vapours must be avoided under all circumstances.

7.1 Precautions for safe handling

- Take care to maintain clean working place.
- The substance must not be present at workplaces in quantities above that required for work to be progressed.
- Do not leave container open.
- Use leak-proof equipment with exhaust for refilling or transfer.
- Do not transport with/using compressed air at temperatures above 70 degree C.
- Avoid splashing.
- Fill only into labelled container.
- Use solvent resistant utensils.
- Avoid any contact when handling the substance.
- Prevent seepage into flooring (use of a steel tub).
- Use an appropriate exterior vessel when transporting in fragile containers.

7.1.1 Workplace

- Do not to eat, drink and smoke in work areas.
- Wash hands after use.
- Remove contaminated clothing and protective equipment before entering eating areas.

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- Provision of very good ventilation in the working area. Especially at higher temperatures.
- The floor must be solvent resistant.
- The floor should not have a floor drain.
- Washing facility at the workplace required.
- Eye bath required. These locations must be signposted clearly.
- When handling excessive amounts of the substance an emergency shower is required.

7.1.2 Equipment

- Use only closed apparatus.
- If release of the substance cannot be prevented, then it should be suctioned off at the point of exit.
- Consider emission limit values, a purification of waste gases if necessary.
- Label containers and pipelines clearly.

7.1.3 Cleaning and maintenance

- Use protective equipment while cleaning if necessary.
- Do not clean damp.
- Only conduct maintenance and other work on or in the vessel or closed spaces after obtaining written permission.
- Only work with vessels and lines after they have been thoroughly rinsed.

7.2 Conditions for safe storage, including any incompatibilities

7.2.1. Storage

- Keep container dry and tightly closed in a cool and well-ventilated place.
- Keep away from strong oxidizing agents.
- Keep in locked storage or only make accessible to specialists or their authorised assistants.
- Do not use any food containers - risk of mistake.
- Containers have to be labelled clearly and permanently.
- Store in the original container as much as possible.
- Place fragile vessels in break-proof outer vessels.
- Recommended storage at room temperature.

7.2.2. Packing material

- VCI storage class (VCI = German Association of the Chemical Industry): 3B

7.3 Specific end use(s)

Not Applicable

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

| Components | CAS-No. | Value | Control parameters | Legal Basis |
|--------------|---------|------------------------------|--------------------|--|
| Nitrobenzene | 98-95-3 | 1mg/m ³ (0,2ppm)* | TWA (8 hours) | Commission Directive 2006/15/EC of 7 February |
| Nitrobenzene | 98-95-3 | 1 ppm | TWA (8 hours) | ACGIH 2015 |

*possibility of significant uptake through the skin.

8.2 Exposure controls

8.2.1 Appropriate engineering controls

This safety data sheet is consistent with the specific conditions relied on to justify the registration in accordance with Article 17 and 18 of Regulation (EC) No. 1907/2006 (REACH).
 See section 7.

8.2.2 Individual protection measures, such as personal protective equipment

| | |
|--|--|
| Respiratory protection: | If vapors form, respirators must be used. Put on full-mask respirator with filter type ABEK. Avoid inhalation of vapour/dust. At higher concentrations or under uncertain conditions a respirator with independent air supply must be used. |
| Hand protection: | Use protective gloves. The glove material must be sufficiently impermeable and resistant to the substance. Check the tightness before wear. Gloves should be well cleaned before being removed, then stored in a well-ventilated location. Pay attention to skin care. In case of doubt contact the gloves manufacturer. |
| Suitable materials for protective gloves | Conditionally suitable materials for protective gloves; EN 374-3: (Permeation time ≥ 8 hours): Nitrile rubber/Nitrile latex - NBR (≥ 0.35 mm) Butyl rubber - Butyl (0,5 mm) Fluoro carbon rubber - FKM (0,4 mm) |
| Unsuitable materials for protective gloves | Textile or leather gloves are completely unsuitable. Natural rubber/Natural latex - NR Polychloroprene - CR Polyvinyl chloride – PVC |
| Eye protection: | Sufficient eye protection should be worn. Avoid contact with eyes. Wear glasses with side protection. If the eyes may potentially come in contact with the liquids, then chemical safety goggles are necessary. |

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| Skin and body protection: | Before a break wash hands and face with soap and water, after work take a shower if applicable. Avoid contact with skin. Do not allow the substance or its solution to dry on the skin. Apply fatty skin-care products after washing. Depending on the risk, wear a tight, long apron and boots or suitable impervious chemical protection clothing. The protection clothing should be solvent resistant. Wear flameproof, antistatic protective clothing. |
| Hygiene measures: | If at risk of contamination, foods, tobacco, beverages and other articles of consumption must not be stored or consumed at the work areas. Special areas are to be designated for these purposes. In NO case, drink alcohol. Avoid contact with clothing. Contaminated clothes must be exchanged and cleaned carefully. Before a break it might be necessary to change clothes. Provide washrooms with showers and rooms with separate storage for street clothing and work clothing if there is a possibility of contamination of work clothes. |

8.2.3 Environmental exposure controls

Discard waste in compliance with applicable regulations:

- [2014/955/EU: Commission Decision of 18 December 2014 amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European Parliament and of the Council;](#)
- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain directives [and other amendments](#);
- Commission Regulation (EU) No 1357/2014 of 18 December 2014 - replacing Annex III to Directive 2008/98/EC of the European Parliament and of the Council on waste and repealing certain Directives.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

| | |
|---|---|
| a) Appearance: | Oily Liquid |
| b) Odour: | Pungent odour (Characteristic bitter almonds) |
| c) Odour threshold: | No data available (*) |
| d) pH: | Not Applicable |
| e) Melting point/freezing point: | 5.26°C |
| f) Initial boiling point and boiling range: | 210.8°C @ 101.3 kPa |

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| | |
|---|--------------------------------------|
| g) Flash point: | 88°C @ 101.3 kPa |
| h) Evaporation rate: | No data available (*) |
| l) Flammability (solid, gas): | Not Flammable |
| j) Upper/lower limits of flammability or explosivity: | No data available (*) |
| k) Vapour pressure: | 20 Pa @ 20°C |
| l) Vapour density: | No data available (*) |
| m) Relative density: | 1.2 @ 20°C |
| n) Solubility (in water): | 1.9 g/L @ 20°C and pH 6.5 (mass/vol) |
| o) Partition coefficient n-octanol/water: | Log Pow: 1.86 @ 24.5°C and pH 7.9 |
| p) Auto-ignition temperature: | 480°C @ 101.3 kPa |
| q) Decomposition temperature: | No data available (*) |
| r) Viscosity: | 2.03 - 2.95 mPas (dynamic) |
| s) Explosive properties: | Non explosive |
| t) Oxidising properties: | Not oxidizing |

(*) No reliable data source for this data

9.2 Other information

Not available.

SECTION 10: STABILITY AND REACTIVITY**10.1 Reactivity**

No hazardous reactions when used as directed.

10.2 Chemical stability

Above 88 °C explosive vapour-air mixtures may be formed.

Building explosive gas mixtures with air

10.3 Possibility of hazardous reactions

Possibility of dangerous reactions with reducing agents and strong oxidants.

10.4 Conditions to avoid

Avoid contact with oxidants and strong acids.

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10.5 Incompatible materials

Possibility of dangerous reactions with reducing agents and strong oxidants.

10.6 Hazardous decomposition products

No hazardous decomposition products when stored and handled correctly.

Hazardous decomposition products may occur (Nitrogen oxides, NO_x).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Nitrobenzene causes methaemoglobinemia. Toxicity on the haematopoietic system probably initiated by methemoglobin production was seen as the primary effect and related secondary adverse effects occurred in the peripheral blood, bone marrow, spleen, liver and kidneys.

Clinical (cyanosis), haematological (decrease of RBC counts, haematocrit, and haemoglobin) and biochemistry examinations (elevated total bilirubin) indicated that nitrobenzene caused haemolytic anemia. Because of the primary function of the spleen in the degradation process of altered/damaged erythrocytes, haematopoiesis, haemosiderosis and congestion were the most predominant lesions in the spleen. Toxic effects were seen in the liver, male reproductive organs, central nervous system, kidneys, adrenals, bronchial and nasal passages. The thymus atrophy may be considered to give some indication of an immunosuppressive effect on T-cells in rats exposed orally or by inhalation (DuPont 1981; Shimo et al. 1994).

| <i>Hazard Class</i> | <i>Dose descriptor</i> | <i>Method/reference</i> |
|-------------------------------|---|-------------------------------------|
| Acute oral toxicity | LD ₅₀ rat: 588 mg/kg bw (male) (Wistar rats, 14 day standard acute study) | ECHA – Study Report, Unnamed (1978) |
| Acute dermal toxicity | LD ₅₀ rabbit: ca. 760 mg/kg bw (estimated) At 560 mg/kg, no animal died. At 760 and 1000 mg/kg, 80% of the animals died. Death occurred at 48 to 96 and 24 to 48 h after application, respectively. | ECHA – Study Report, Unnamed (1976) |
| Acute inhalation toxicity | LC ₀ (3h) rat: 2.25 mg/L air (male/female) | ECHA – Study Report, Unnamed (1977) |
| Skin irritation/corrosion | No adverse effect observed (not irritating) | ECHA – Study Report, Unnamed (1979) |
| Serious eye damage/irritation | No adverse effect observed (not irritating) | ECHA – Study Report, Unnamed (1979) |
| Skin sensitisation | No adverse effect observed (not sensitising) | ECHA – Study Report, Unnamed (2008) |

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| <i>Hazard Class</i> | <i>Dose descriptor</i> | <i>Method/reference</i> |
|---|---|--|
| Germ cell mutagenicity In vitro/In vivo | From the available negative data for mutagenicity in vitro and in vivo it can be concluded that nitrobenzene is not suspected to exert mutagenic effects in germ cell. | Environ. Mutagen. Supplement 1, 3-142, Haworth, S. et al. (1983) OECD Guideline 486 (Unscheduled DNA Synthesis (UDS) Test with Mammalian Liver Cells in vivo) |
| Carcinogenicity | LOAEC/NOAEC: 0.005 mg/L air (Rat, Sprague-Dawley)(Systemic) | OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies) |
| Reproductive toxicity Teratogenicity/development | NOAEC: 0.051 mg/L air (nominal) Rat, Sprague-Dawley, male NOEC: ≥ 0.205 mg/L air (nominal) Rat, Sprague-Dawley, male/female <u>Inhalation:</u> NOEC: 0.005 mg/L air NOAEC: 0.051 mg/L air NOAEC: 0.250 mg/L air Rat, Sprague-Dawley | ECHA – Study Report, Unnamed (1985) ECHA – Study Report, Unnamed (1987) ECHA – Study Report, Unnamed (1984) European Commission 2007 Nitrobenzene RAR |
| STOT-single exposure | No data available | ECHA (REACH Registered Substance Factsheets) |
| STOT-repeated exposure | <u>Oral:</u> LOAEL: 5 mg/kg bw/day (nominal) rat, Fischer 344, male/female <u>Inhalation:</u> NOAEC (rat): 25 - 625 mg/m ³ air NOAEC (mouse): 50 - 80 mg/m ³ air LOAEC (rat): 25 - 50 mg/m ³ air LOAEC (mouse): 25 mg/m ³ air | Eisei Shikensho Hokoku 112, 71-81, Shimo, T. et al. (1994) OECD Guideline 412 (Subacute Inhalation Toxicity: 28-Day Study) |
| Aspiration hazard | No data available | ECHA (REACH Registered Substance Factsheets) |

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Information on environmental effects

Nitrobenzene is toxic to aquatic life with long lasting effects. Nitrobenzene is not expected to hydrolyse under environmental conditions; Nitrobenzene is not readily biodegradable; If nitrobenzene is released or

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deposited to soil most of the substance is expected to leach through the soil into the groundwater. To a smaller extent nitrobenzene is likely to volatilise to the atmosphere." The log octanol/water partition coefficient of nitrobenzene (1.86) suggests that nitrobenzene will not have potential to bioconcentration in the aquatic environment, and will not therefore have the possibility to bioaccumulate leading to secondary poisoning.

| <i>Hazard Class/species</i> | <i>Dose descriptor</i> | <i>Method/reference</i> |
|---|--|---|
| Short-term toxicity to fish | LC ₅₀ (4 days) = 92 mg/L LC ₀ (4 days) = 44 mg/L LC ₁₀₀ (4 days) = 98 mg/L Freshwater, zebra fish study; test. Material: nitrobenzol: | OECD Guideline 203 (Fish, Acute toxicity) |
| Long-term toxicity to fish | LC ₅₀ (23 days) = 0.002 mg/L Freshwater, salmo gairdneri study; | Aquatic Toxicity of Organic Compounds to Embryo-Larval Stages of Fish and Amphibians |
| Short-term toxicity to aquatic invertebrates | EC ₅₀ (48h) = 35 mg/L LC ₅₀ (48h) = 62 mg/L Freshwater, <i>Daphnia magna</i> (Water flea) | According to OECD proposal, 1979 |
| Long-term toxicity to aquatic invertebrates: | NOEC (21 days) = 2.6 – 12.5 mg/L Freshwater, <i>Daphnia magna</i> (Water flea) | Proposed Preliminary Testing Method: prolonged toxicity test on <i>Daphnia magna</i> ", according to the Federal Environmental Agency |
| Toxicity to algae and cyanobacteria | EC ₅₀ (4 days) = 18 mg/L Freshwater, <i>Chlorella pyrenoidosa</i> , based on: growth rate | OECD Guideline 201 (Alga, Growth Inhibition Test) |
| Toxicity to microorganisms | IC ₅₀ (24h) = 0.92 mg/L Freshwater, <i>Nitrosomonas</i> sp., Static Based on: inhibition of ammonia consumption | Nitrification inhibition test |
| Toxicity to terrestrial macro-organisms except arthropods | LC ₅₀ (14 days) = 226-362 mg/kg soil dw <i>Eisenia fetida</i> , <i>Allolobophora tuberculata</i> , <i>Eudrilus eugeniae</i> , <i>Perionyx excavatus</i> | Report EUR 8714EN Litchfield and Wilcoxon, 1949 |

12.2 Persistence and degradability

Biodegradability: [Readily biodegradable.](#)

Degradation (abiotic): DT₅₀ nitrobenzene=131.7 days, determined by calculation (Epiwin v 3.1, SRC AOP v1.92). 6.7% of the test material was mineralised to CO₂ after 17 hours (Freitag et al, 1982).
Half-life nitrobenzene > 23 days was determined at 23°C.(Atkinson, 1987).

Nitrobenzene**12.3 Bioaccumulative potential**

BCF (bioconcentration factor) = 7.7. Bioaccumulation of nitrobenzene in the fresh water species *Cyprinus carpio* a test considered equivalent to OECD Guideline 305 C (MITI, 1992).

The results above show no indication of a bioaccumulation potential in aquatic organisms (BCF <2000).

Log Pow Value = 1.86 @ 24.5°C and pH 7.9

12.4 Mobility in soil

If nitrobenzene is released or deposited to soil most of the substance is expected to leach through the soil into the groundwater. To a smaller extend nitrobenzene is likely to volatilize to the atmosphere.

12.5 Results of PBT and vPvB assessment

The data show that whilst the properties of the substance meet the criteria for Persistence, P/vP and Toxicity, T, they do not meet the specific criteria detailed in Annex XIII for bioaccumulation and therefore nitrobenzene is not classified as PBT and vPvB.

12.6 Other adverse effects

Data not available.

SECTION 13: DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods****Waste disposal procedures:**

- Wastes of organic compounds can be adsorbed with the specific absorbent material.
- Collect in container for toxic, flammable compounds.
- Collection vessels must be clearly labelled with a systematic description of their contents and with the hazard symbol and the P and H phrases.
- Store the vessels in a well-ventilated location
- EWC Code 07 01 99 - Wastes not otherwise specified

Packaging treatment:

- Recycling of packaging is preferable to elimination or incineration.
- It is not advisable to discharge nitrobenzene waste through the sewage system
- EWC Code 15 01 10(*) – Packaging containing / contaminated by waste from hazardous substances

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Dispose in accordance with applicable regulations:

- 2014/955/EU: Commission Decision of 18 December 2014 amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European Parliament and of the Council;
- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain directives [and other amendments](#);
- Commission Regulation (EU) No 1357/2014 of 18 December 2014 - replacing Annex III to Directive 2008/98/EC of the European Parliament and of the Council on waste and repealing certain Directives.

SECTION 14: TRANSPORT INFORMATION

| | ADR | IATA | IMDG | RID |
|--|---------------|----------------------------|---------------|--------------|
| 14.1 UN number: | 1662 | 1662 | 1662 | 1662 |
| 14.2 UN proper shipping name: | NITROBENZENE | NITROBENZENE | NITROBENZENE | NITROBENZENE |
| 14.3 Transport hazard class(es): | 6.1 | 6.1 | 6.1 | 6.1 |
| Labels: | 6.1 | Toxic | 6.1 | 6.1 |
| Packing Instruction (cargo aircraft): | P001 IBC02 | | P001 IBC02 | |
| Packing Instruction (cargo aircraft): | | 662/Max Liq Qty/Pkg: 60 L | | |
| Packing Instruction (cargo passenger): | | 654/Max Liq Qty/Pkg: 5 L | | |
| Packing Instruction (LQ): | 100 mL | Y641/Max. Liq Qty/Pkg: 1 L | 100 mL | 100 mL |
| Packing Instruction (EQ): | E4 | E4 | E4 | E4 |
| 14.4 Packing group: | II | II | II | II |
| 14.5 Environmentally hazardous: | No | No | No | No |
| 14.6 Special precautions for user: | | | | |
| Tunnel restriction code: | (D/E) | | | |
| EmS: | | | F-A; S-A | |
| HI: | 60 | | | 60 |
| 14.7 Transport in Bulk according to Annex II of MARPOL and the IBC Code: | | | | |
| Pollution Category: | | | Y | |
| Hazards: | | | S/P | |
| Ship Type: | | | 2 | |

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SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

- Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC and other amendments;
- Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 and other amendments;;
- Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work and other amendments;
- Council Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC) and other amendments;
- Commission Directive 2006/15/EC of 7 February 2006 establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC;
- 2014/955/EU: Commission Decision of 18 December 2014 amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European Parliament and of the Council;
- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives and other amendments;
- Commission Regulation (EU) No 1357/2014 of 18 December 2014 - replacing Annex III to Directive 2008/98/EC of the European Parliament and of the Council on waste and repealing certain Directives;
- Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008, on the inland transport of dangerous goods (ADR; RID and ADN) and other amendments;
- Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC.
- Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage and other amendments.

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15.2 Chemical safety assessment

No chemical safety assessment was made.

SECTION 16: OTHER INFORMATION

This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Changes: [Changes are in blue text.](#)

| DATE | REVISION | CHANGES MADE |
|------------|----------|---------------------|
| 16-12-2019 | 15 | Section 1.2 |
| | | Section 2 |
| | | Section 4.1 |
| | | Section 5.2 and 5.3 |
| | | Section 6 |
| | | Section 7.1 |
| | | Section 8 |
| | | Section 9.1 |
| | | Section 10 |
| | | Section 11 |
| | | Section 12 |
| | | Section 13 |
| | | Section 14 |
| | | Section 15 |

Abbreviations mentioned on the Sheet:

[Acute Tox. 3 – Acute dermal toxicity, category 3](#)

[Acute Tox. 3 – Acute inalation toxicity, category 3](#)

[Acute Tox. 3 – Acute oral toxicity, category 3](#)

ADR – European Agreement concerning the International Carriage of Dangerous Goods by Road

Aquatic Chronic 3 - Chronic toxicity in aquatic environment, category 3

Carc. 2 – Suspected human carcinogens, category 2

CAS No. – World authority for chemical information

DT₅₀ - Time required for 50% dissipation of the initial concentration

[dw – dryWeight](#)

EC No. – European Community

EC₅₀ – Half of maximum effective concentration

[ECHA – European Chemical Agency](#)

[EQ - Excepted quantities](#)

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[EWC - European Waste Catalogue](#)

GHS : Globally Harmonised System of Classification and Labelling of Chemicals

IATA – International Air Transport Association

[IC₅₀ - Half concentration of an inhibitor](#)

IMDG – International Maritime Dangerous Goods

[LC₀ - Maximum tolerable concentration](#)

[LC₁₀₀ - Absolute lethal concentration](#)

LC50 – Median Lethal Concentration

LD50 - Median Lethal dose

LOAEC - Lowest observed effect concentration

[LOAEL – Lowest observed adverse effect level](#)

LQ – Limited Quantities

[NOAEC – No observed adverse effect concentration](#)

NOEC - No Observed Effect Concentration

PBT - Persistent, bioaccumulative and toxic.

REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals

Repr. 1B - Reproductive toxicity, category 1B

RID – International Rule for Transport of Dangerous Substances by Railway

STOT RE 1 - Specific target organ toxicity-repeated exposure, Category 1

TWA- Time-Weighted Average

[vPvB - Very persistent and very bioaccumulative](#)