

**Material Safety Data Sheet**

Version 4.0

Revision Date 03/14/2010

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**1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : 1-Chloro-2-nitrobenzene

Product Number : 45926

Brand : Fluka

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +18003255832

Fax : +18003255052

Emergency Phone # : (314) 776-6555

**2. HAZARDS IDENTIFICATION****Emergency Overview****OSHA Hazards**

Toxic by ingestion, Toxic by skin absorption

**GHS Label elements, including precautionary statements**

Pictogram



Signal word Danger

Hazard statement(s)

H301 + H311

Toxic if swallowed or in contact with skin.

H401

Toxic to aquatic life.

Precautionary statement(s)

P280

Wear protective gloves/protective clothing.

P301 + P310

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P312

Call a POISON CENTER or doctor/physician if you feel unwell.

**HMIS Classification**

Health hazard: 2

Flammability: 1

Physical hazards: 0

**NFPA Rating**

Health hazard: 2

Fire: 1

Reactivity Hazard: 0

**Potential Health Effects**

Inhalation May be harmful if inhaled. May cause respiratory tract irritation.

Skin Toxic if absorbed through skin. May cause skin irritation.

Eyes May cause eye irritation.

Ingestion Toxic if swallowed.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Formula : C<sub>6</sub>H<sub>4</sub>ClNO<sub>2</sub>

Molecular Weight : 157.55 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
<b>1-Chloro-2-nitrobenzene</b>			
88-73-3	201-854-9	-	-

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#### 4. FIRST AID MEASURES

##### **General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

##### **If inhaled**

If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.

##### **In case of skin contact**

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

##### **In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

##### **If swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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#### 5. FIRE-FIGHTING MEASURES

##### **Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

##### **Special protective equipment for fire-fighters**

Wear self contained breathing apparatus for fire fighting if necessary.

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#### 6. ACCIDENTAL RELEASE MEASURES

##### **Personal precautions**

Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Evacuate personnel to safe areas.

##### **Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

##### **Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

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#### 7. HANDLING AND STORAGE

##### **Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

##### **Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place.

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#### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

##### **Personal protective equipment**

##### **Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or type P2 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

##### **Hand protection**

Handle with gloves.

**Eye protection**

Face shield and safety glasses

**Skin and body protection**

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

**Hygiene measures**

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

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**9. PHYSICAL AND CHEMICAL PROPERTIES****Appearance**

Form	Solidified mass or fragments
Colour	light yellow

**Safety data**

pH	6 at 0.4 g/l
Melting point	31 - 33 °C (88 - 91 °F) - lit.
Boiling point	246 °C (475 °F) - lit.
Flash point	126 °C (259 °F) - closed cup
Ignition temperature	470 °C (878 °F)
Lower explosion limit	1.4 %(V)
Upper explosion limit	8.7 %(V)
Vapour pressure	0.43 hPa (0.32 mmHg) at 50 °C (122 °F) 0.15 hPa (0.11 mmHg) at 37.7 °C (99.9 °F) 0.05 hPa (0.04 mmHg) at 25 °C (77 °F)
Density	1.348 g/cm <sup>3</sup> at 25 °C (77 °F)
Water solubility	no data available
Partition coefficient: n-octanol/water	log Pow: 2.24

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**10. STABILITY AND REACTIVITY****Chemical stability**

Stable under recommended storage conditions.

**Conditions to avoid**

no data available

**Materials to avoid**

Strong bases, Strong oxidizing agents

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NO<sub>x</sub>), Hydrogen chloride gas

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**11. TOXICOLOGICAL INFORMATION****Acute toxicity**

LD<sub>50</sub> Oral - rat - 268 mg/kg

LD<sub>50</sub> Dermal - rabbit - 400 mg/kg

**Skin corrosion/irritation**

no data available

**Serious eye damage/eye irritation**

no data available

**Respiratory or skin sensitization**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

Carcinogenicity - rat - Oral

Tumorigenic:Neoplastic by RTECS criteria. Gastrointestinal:Tumors. Endocrine:Tumors.

Carcinogenicity - mouse - Oral

Tumorigenic:Carcinogenic by RTECS criteria. Liver:Tumors.

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (1-Chloro-2-nitrobenzene)

3 - Group 3: Not classifiable as to its carcinogenicity to humans (1-Chloro-2-nitrobenzene)

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**

Reproductive toxicity - rat - Inhalation

Paternal Effects: Spermatogenesis (including genetic material, sperm morphology,motility, and count).

**Specific target organ toxicity - single exposure (GHS)**

no data available

**Specific target organ toxicity - repeated exposure (GHS)**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

<b>Inhalation</b>	May be harmful if inhaled. May cause respiratory tract irritation.
<b>Ingestion</b>	Toxic if swallowed.
<b>Skin</b>	Toxic if absorbed through skin. May cause skin irritation.
<b>Eyes</b>	May cause eye irritation.

**Signs and Symptoms of Exposure**

Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Additional Information**

RTECS: CZ0875000

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**12. ECOLOGICAL INFORMATION****Toxicity**

Toxicity to daphnia and other aquatic invertebrates.	EC50 - Daphnia magna (Water flea) - 3.2 mg/l - 48 h
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**Persistence and degradability****Bioaccumulative potential**

Bioaccumulation	Oncorhynchus mykiss (rainbow trout) - 36 d
	Bioconcentration factor (BCF): 176

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

no data available

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### 13. DISPOSAL CONSIDERATIONS

**Product**

Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

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### 14. TRANSPORT INFORMATION

**DOT (US)**

UN-Number: 1578 Class: 6.1 Packing group: II  
Proper shipping name: Chloronitrobenzenes, solid  
Marine pollutant: No  
Poison Inhalation Hazard: No

**IMDG**

UN-Number: 1578 Class: 6.1 Packing group: II EMS-No: F-A, S-A  
Proper shipping name: CHLORONITROBENZENES, SOLID  
Marine pollutant: No

**IATA**

UN-Number: 1578 Class: 6.1 Packing group: II  
Proper shipping name: Chloronitrobenzenes, solid

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### 15. REGULATORY INFORMATION

**OSHA Hazards**

Toxic by ingestion, Toxic by skin absorption

**DSL Status**

This product contains the following components listed on the Canadian NDSL list. All other components are on the Canadian DSL list.

1-Chloro-2-nitrobenzene

CAS-No.  
88-73-3

**SARA 302 Components**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

Acute Health Hazard

**Massachusetts Right To Know Components**

1-Chloro-2-nitrobenzene

CAS-No.  
88-73-3

Revision Date  
1993-04-24

**Pennsylvania Right To Know Components**

CAS-No.

Revision Date

1-Chloro-2-nitrobenzene

88-73-3

1993-04-24

**New Jersey Right To Know Components**

1-Chloro-2-nitrobenzene

CAS-No.  
88-73-3

Revision Date  
1993-04-24

**California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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**16. OTHER INFORMATION**

**Further information**

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

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