
1. PRODUCT AND COMPANY IDENTIFICATION

Product name : 4-Nitroaniline

Product Number : 185310
Brand : Aldrich

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

Telephone : +1 800-325-5832
Fax : +1 800-325-5052
Emergency Phone # : (314) 776-6555

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

Toxic by inhalation., Harmful by ingestion., Toxic by skin absorption

Target Organs

Blood, Heart, Lungs, Liver

GHS Label elements, including precautionary statements

Pictogram



Signal word : Danger

Hazard statement(s)

H302 : Harmful if swallowed.
H311 + H331 : Toxic in contact with skin or if inhaled.
H402 : Harmful to aquatic life.

Precautionary statement(s)

P261 : Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P280 : Wear protective gloves/ protective clothing.
P311 : Call a POISON CENTER or doctor/ physician.

HMIS Classification

Health hazard: 2
Chronic Health Hazard: *
Flammability: 1
Physical hazards: 1

NFPA Rating

Health hazard: 2
Fire: 1
Reactivity Hazard: 0

Potential Health Effects

Inhalation : Toxic if inhaled. May cause respiratory tract irritation.
Skin : Toxic if absorbed through skin. May cause skin irritation.
Eyes : May cause eye irritation.
Ingestion : Harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : C₆H₆N₂O₂
Molecular Weight : 138.12 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Nitroaniline			
100-01-6	202-810-1	612-012-00-9	-

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

Flush eyes with water as a precaution.

If swallowed

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

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.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

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. Sweep up and shovel. Keep in suitable, closed containers for disposal.

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.

Moisture sensitive.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control	Update	Basis
------------	---------	-------	---------	--------	-------

			parameters		
Nitroaniline	100-01-6	TWA	3 mg/m3	2007-01-01	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Eye irritation Liver damage Methemoglobinemia Substances for which there is a Biological Exposure Index or Indices (see BEI® section), see BEI® for Methemoglobin Inducers Not classifiable as a human carcinogen: Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of a lack of data. In vitro or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories. Danger of cutaneous absorption				
		TWA	1 ppm 6 mg/m3	1997-08-04	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Skin designation The value in mg/m3 is approximate.				
		TWA	3 mg/m3	1989-01-19	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
	Skin notation				
		TWA	3 mg/m3	2005-09-01	USA. NIOSH Recommended Exposure Limits
	Potential for dermal absorption				

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. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	crystalline
Colour	yellow
Odour	Ammonia odor Ammonia odor

Safety data

pH	7.0
Melting point	146 - 149 °C (295 - 300 °F) - lit.
Boiling point	260 °C (500 °F) at 133 hPa (100 mmHg) - lit.
Flash point	213.0 °C (415.4 °F) - closed cup

Ignition temperature	180 °C (356 °F)
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	0.005 hPa (0.004 mmHg) at 25.0 °C (77.0 °F)
Density	1.44 g/cm ³
Water solubility	slightly soluble
Partition coefficient: n-octanol/water	log Pow: 1.39 log Pow: 5

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Conditions to avoid

no data available

Materials to avoid

Strong acids, Strong oxidizing agents, Strong reducing agents, Plastics, Rubber

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NO_x)

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50 Oral - rat - 750.0 mg/kg

LD50 Dermal - guinea pig - > 500.0 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

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

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

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure (Globally Harmonized System)

no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

no data available

Aspiration hazard

no data available

Potential health effects

Inhalation	Toxic if inhaled. May cause respiratory tract irritation.
Ingestion	Harmful if swallowed.
Skin	Toxic if absorbed through skin. May cause skin irritation.
Eyes	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., Exposure to and/or consumption of alcohol may increase toxic effects., Headache, Unconsciousness, Cough, chest pain, Difficulty in breathing, Drowsiness, Nausea, Cyanosis, Ataxia., Diarrhoea, Vomiting, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated., p-Nitroaniline is readily absorbed by inhalation, ingestion, or skin absorption. It is a strong methemoglobin former. Cyanosis is the first manifestation of toxicity.

Additional Information

RTECS: BY7000000

12. ECOLOGICAL INFORMATION**Toxicity**

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 85.7 - 142 mg/l - 96.0 h
	LC50 - Leuciscus idus (Golden orfe) - 35 mg/l - 48.0 h
	LC50 - Danio rerio (zebra fish) - 87.6 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates.	EC50 - Daphnia magna (Water flea) - 17.00 mg/l - 48 h
Toxicity to algae	EC50 - No information available. - 68.00 mg/l - 24 h

Persistence and degradability

no data available

Bioaccumulative potential

Bioaccumulation	Danio rerio (zebra fish) - 96 h
	Bioconcentration factor (BCF): 4.4

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 life.

Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION**DOT (US)**

UN-Number: 1661 Class: 6.1 Packing group: II
Proper shipping name: Nitroanilines
Reportable Quantity (RQ): 5000 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG

UN-Number: 1661 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: NITROANILINES
Marine pollutant: No

IATA

UN-Number: 1661 Class: 6.1 Packing group: II
Proper shipping name: Nitroanilines

15. REGULATORY INFORMATION

OSHA Hazards

Toxic by inhalation., Harmful by ingestion., Toxic by skin absorption

DSL Status

All components of this product are on the Canadian DSL list.

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

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Nitroaniline	100-01-6	2007-07-01

SARA 311/312 Hazards

Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Nitroaniline	100-01-6	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Nitroaniline	100-01-6	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Nitroaniline	100-01-6	2007-07-01

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.

16. OTHER INFORMATION

Further information

Copyright 2010 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.
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.