

## Chemical Safety Data Sheet MSDS / SDS

## N-(4-aminophenyl)aniline SDS

Revision Date:2024-04-25 Revision Number:1

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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier**

Product name: N-(4-aminophenyl)aniline

CAS: 101-54-2

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses: For R&amp;D use only. Not for medicinal, household or other use.

Uses advised against: none

**Company Identification**

Company: Chemicalbook.in

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**SECTION 2: Hazards identification****Classification of the substance or mixture**

Not classified.

**GHS label elements, including precautionary statements**

Signal word                      No signal word

**Hazard statement(s)**

none

**Precautionary statement(s)****Prevention**

none

**Response**

none

**Storage**

none

**Disposal**

none

**Other hazards which do not result in classification**

no data available

**SECTION 3: Composition/information on ingredients****Substance**

Chemical name:                      N-(4-aminophenyl)aniline

Common names and  
synonyms:                              N-(4-aminophenyl)aniline

CAS number:                            101-54-2

EC number:                              202-951-9

Concentration:                         100%

## SECTION 4: First aid measures

### Description of necessary first-aid measures

#### If inhaled

Fresh air, rest. Refer for medical attention.

#### Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower.

#### Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

#### Following ingestion

Rinse mouth. Give one or two glasses of water to drink. Do NOT induce vomiting. Refer for medical attention .

### Most important symptoms/effects, acute and delayed

**SYMPTOMS:** Symptoms of exposure to this compound may include irritation of the eyes and upper respiratory tract. It may also cause irritation of the skin and mucous membranes. Other symptoms include headache, dizziness and methemoglobinemia with symptoms of cyanosis including bluish discoloration of the lips, earlobes and fingernails. Dermatitis has been reported.

**ACUTE/CHRONIC HAZARDS:** This compound is toxic by ingestion. It is also harmful by inhalation or skin absorption. It is an irritant of the skin, eyes, mucous membranes and upper respiratory tract. When heated to decomposition it emits toxic fumes of carbon monoxide, carbon dioxide and nitrogen oxides. (NTP, 1992)

### Indication of immediate medical attention and special treatment needed, if necessary

Treatment is symptomatic. whenever histamine-like effects predominate, therapeutic trial with an antihistaminic is suggested.  
/prc: potential methemoglobin former./ phenylenediamine

## SECTION 5: Firefighting measures

### Suitable extinguishing media

Fires involving this material can be controlled with a dry chemical, carbon dioxide or Halon extinguisher. A water spray may also be used. (NTP, 1992)

### Specific hazards arising from the chemical

This chemical is combustible. (NTP, 1992)

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

Use dry powder, carbon dioxide.

### **SECTION 6: Accidental release measures**

#### **Personal precautions, protective equipment and emergency procedures**

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting.

#### **Environmental precautions**

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting.

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

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

### **SECTION 7: Handling and storage**

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

NO open flames. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

#### **Conditions for safe storage, including any incompatibilities**

Separated from strong oxidants and strong acids. Dry.

### **SECTION 8: Exposure controls/personal protection**

### **Control parameters**

### **Occupational Exposure limit values**

MAK: skin absorption (H); sensitization of skin (SH); carcinogen category: 3B

### **Biological limit values**

no data available

### **Appropriate engineering controls**

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

### **Individual protection measures, such as personal protective equipment (PPE)**

#### **Eye/face protection**

Wear safety spectacles or eye protection in combination with breathing protection if powder.

#### **Skin protection**

Protective clothing. Protective gloves.

#### **Respiratory protection**

Use local exhaust or breathing protection.

#### **Thermal hazards**

no data available

## **SECTION 9: Physical and chemical properties and safety characteristics**

Physical state:	PHYSICAL DESCRIPTION: Odorless purple-black solid or flake or dark purple chips. (NTP, 1992)
Colour:	Needles (alcohol)
Odour:	no data available

Melting point/freezing point:	95°C(dec.)(lit.)
Boiling point or initial boiling point and boiling range:	354°C(lit.)
Flammability:	Combustible.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	58°C(lit.)
Auto-ignition temperature:	no data available
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	1.76X10 <sup>-2</sup> Pa.s at 25 deg C
Solubility:	less than 1 mg/mL at 66° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Kow = 1.82 (est)
Vapour pressure:	0.000171mmHg at 25°C
Density and/or relative density:	1.09
Relative vapour density:	no data available
Particle characteristics:	no data available

## SECTION 10: Stability and reactivity

**Reactivity**

On combustion, forms toxic fumes of carbon monoxide and nitrogen oxides. Reacts with strong acids and strong oxidants.

**Chemical stability**

no data available

**Possibility of hazardous reactions**

N-PHENYL-P-PHENYLENEDIAMINE is incompatible with strong oxidizers. It is also incompatible with strong acids. It may react with plastics. (NTP, 1992)

**Conditions to avoid**

no data available

**Incompatible materials**

no data available

**Hazardous decomposition products**

When heated to decomposition it emits toxic fumes of NO<sub>x</sub>.

**SECTION 11: Toxicological information****Acute toxicity**

Oral: LD50 Mouse oral 244 mg/kg

Inhalation: no data available

Dermal: no data available

**Skin corrosion/irritation**

no data available

**Serious eye damage/irritation**

no data available

#### **Respiratory or skin sensitization**

no data available

#### **Germ cell mutagenicity**

no data available

#### **Carcinogenicity**

no data available

#### **Reproductive toxicity**

no data available

#### **STOT-single exposure**

The substance is irritating to the skin and eyes. Ingestion could cause effects on the blood. This may result in the formation of methaemoglobin. Medical observation is indicated. The effects may be delayed.

#### **STOT-repeated exposure**

Repeated or prolonged contact may cause skin sensitization.

#### **Aspiration hazard**

A harmful concentration of airborne particles can be reached quickly when dispersed, especially if powdered.

## **SECTION 12: Ecological information**

### **Toxicity**

Toxicity to fish: LC50; Species: Brachydanio rerio (Zebrafish); Conditions: static; Concentration: 1.9 mg/L for 96 hr /99.9% purity

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water flea, age <24 hr); Conditions: freshwater, static, pH 7.8-8.1, dissolved oxygen 96-99% saturated; Concentration: 1220 ug/L for 24 hr (95% confidence interval: 520-2920 ug/L); Effect: intoxication, immobilization /98% purity



Toxicity to algae: EC50; Species: Scenedesmus subspicatus (Algae); Conditions: open static system, 21-25 deg C, pH 8.3-9.5; Concentration: 2.4 mg/L for 72 hr; Effect: biomass /98.8% purity

Toxicity to microorganisms: no data available

### **Persistence and degradability**

AEROBIC: p-Aminodiphenylamine, present at 2.4 mg/L biodegraded 0, 24, and 28% in 5, 10, and 20 days, respectively, using an adapted activated sludge inoculum in a DEV test(1). p-Aminodiphenylamine, present at 100 mg DOC/L, reached 58% DOC after 3 hours using a mixed, non-adapted activated sludge inoculum in a Zahn-Wellens test(1).

### **Bioaccumulative potential**

An estimated BCF of 5.1 was calculated for p-aminodiphenylamine(SRC), using an estimated log Kow of 1.82(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

### **Mobility in soil**

Using a structure estimation method based on molecular connectivity indices(1), the Koc of p-aminodiphenylamine can be estimated to be  $3.1 \times 10^3$ (SRC). According to a classification scheme(2), this estimated Koc value suggests that p-aminodiphenylamine is expected to have slight mobility in soil. The pKa of p-aminodiphenylamine is 5.20(3), indicating that this compound will partially exist in cation form in the environment and cations generally adsorb more strongly to soils containing organic carbon and clay than their neutral counterparts(4).

### **Other adverse effects**

no data available

## **SECTION 13: Disposal considerations**

### **Disposal methods**

#### **Product**

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### **Contaminated packaging**

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be

punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

## SECTION 14: Transport information

### UN Number

ADR/RID: UN2811 (For reference only, please check.)

IMDG: UN2811 (For reference only, please check.)

IATA: UN2811 (For reference only, please check.)

### UN Proper Shipping Name

ADR/RID: TOXIC SOLID, ORGANIC, N.O.S. (For reference only, please check.)

IMDG: TOXIC SOLID, ORGANIC, N.O.S. (For reference only, please check.)

IATA: TOXIC SOLID, ORGANIC, N.O.S. (For reference only, please check.)

### Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.)

IMDG: 6.1 (For reference only, please check.)

IATA: 6.1 (For reference only, please check.)

### Packing group, if applicable

ADR/RID: I (For reference only, please check.)

IMDG: I (For reference only, please check.)

IATA: I (For reference only, please check.)

### Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

### Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

### **SECTION 15: Regulatory information**

**Safety, health and environmental regulations specific for the product in question**

**European Inventory of Existing Commercial Chemical Substances (EINECS)**

Listed.

**EC Inventory**

Listed.

**United States Toxic Substances Control Act (TSCA) Inventory**

Listed.

**China Catalog of Hazardous chemicals 2015**

Listed.

**New Zealand Inventory of Chemicals (NZIoC)**

Listed.

**(PICCS)**

Listed.

**Vietnam National Chemical Inventory**

Listed.

**IECSC)**

Listed.

**Korea Existing Chemicals List (KECL)**

Listed.

## SECTION 16: Other information

### Abbreviations and acronyms

CAS: Chemical Abstracts Service

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

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

### References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

### Other Information

Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available. Do NOT take working clothes home. UN 3077 is for the molten substance.

Disclaimer: 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. We as supplier shall not be held liable for any