

Material Safety Data Sheet

Date Printed: 17/JUN/2005

Date Updated: 12/MAR/2004

Version 1.2

According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

1 - Product and Company Information

Product Name	4-NITRO-1,2-PHENYLENEDIAMINE, 98%
Product Number	108898
Company	Sigma-Aldrich Pty. Ltd. 12 Anella Avenue Castle Hill NSW 2154 Australia
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2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
3,4-DIAMINONITROBENZENE, 97% (HPLC)	99-56-9	202-766-3	None
Formula	C6H7N3O2		
Molecular Weight	153.14 AMU		
Synonyms	2-Amino-4-nitroaniline * C.I. 76020 * 1,2-Diamino-4-nitrobenzene * 3,4-Diaminonitrobenzene * NCI-C03941 * 4NDB * 4-Nitro-1,2-benzenediamine * 4-Nitro-1,2-diaminobenzene * 4-Nitro-1,2-fenylendiamin (Czech) * p-Nitro-o-phenylenediamine * 4-Nitro-o-phenylene-diamine * 4-Nitro-1,2-phenylenediamine * 4-NO * 4-Nop * 4-Nopd * 4-N-o-Pda		

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

Harmful if swallowed. Irritating to eyes, respiratory system and skin. May cause sensitization by skin contact.

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

AFTER SKIN CONTACT

In case of contact, immediately wash skin with soap and copious amounts of water.

AFTER EYE CONTACT

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe dust. Avoid contact with eyes, skin, and clothing.

STORAGE

Conditions of Storage: Keep tightly closed. Store in a cool dry place.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Mechanical exhaust required. Safety shower and eye bath.

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

PERSONAL PROTECTIVE EQUIPMENT

Special Protective Measures: Wear appropriate government approved respirator, chemical-resistant gloves, safety goggles, other protective clothing.

9 - Physical and Chemical Properties

Appearance

Form: Powder

Property

Value

At Temperature or Pressure

pH	N/A
BP/BP Range	N/A
MP/MP Range	200 °C
Flash Point	N/A
Flammability	N/A
Autoignition Temp	N/A
Oxidizing Properties	N/A
Explosive Properties	N/A
Explosion Limits	N/A
Vapor Pressure	N/A
SG/Density	N/A
Partition Coefficient	N/A
Viscosity	N/A
Vapor Density	N/A
Saturated Vapor Conc.	N/A
Evaporation Rate	N/A
Bulk Density	N/A
Decomposition Temp.	N/A
Solvent Content	N/A
Water Content	N/A
Surface Tension	N/A
Conductivity	N/A
Miscellaneous Data	N/A
Solubility	N/A

10 - Stability and Reactivity

STABILITY

Materials to Avoid: Strong oxidizing agents, Strong acids, Strong reducing agents, Acid chlorides, Acid anhydrides.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Nitrogen oxides.

11 - Toxicological Information

RTECS NUMBER: ST2975000

ACUTE TOXICITY

LD50
Oral
Rat
681 mg/kg

LD50
Intraperitoneal
Rat
>1600 MG/KG

LD50
Oral
Mouse
681 mg/kg

SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. 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.

ROUTE OF EXPOSURE

Skin Absorption: May be harmful if absorbed through the skin.
Inhalation: Material is irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.
Ingestion: Harmful if swallowed.
Multiple Routes: Causes eye and skin irritation.

CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC CARCINOGEN LIST

Rating: Group 3

CHRONIC EXPOSURE - MUTAGEN

Human
1 MMOL/L
Cell Type: HeLa cell
Unscheduled DNA synthesis

Rat
80 UG/PLATE
Cell Type: Embryo
Morphological transformation.

Rat
500 UG/L
Cell Type: liver
Unscheduled DNA synthesis

Mouse
1 GM/KG
Intraperitoneal
Micronucleus test

Mouse
13100 UG/L (+S9)
Cell Type: lymphocyte
Mutation in microorganisms

Mouse
10 UMOL/L
24H
Cell Type: Embryo
Morphological transformation.

Mouse
10 UMOL/L
Cell Type: Other cell types
Morphological transformation.

Mouse
104 UMOL/L
Cell Type: lymphocyte
DNA damage

Mouse
250 MG/KG

Oral
Other mutation test systems

Mouse
3000 MG/KG
Intraperitoneal
10W
Dominant lethal test

Mouse
50 MG/L
Cell Type: lymphocyte
Mutation in mammalian somatic cells.

Hamster
500 UG/L
Cell Type: Embryo
Morphological transformation.

Hamster
138 MG/L
Cell Type: ovary
Cytogenetic analysis

Hamster
25 MG/L
Cell Type: fibroblast
Cytogenetic analysis

Hamster
10 UMOL/L
24H
Cell Type: Other cell types
Cytogenetic analysis

Hamster
10 UMOL/L
Cell Type: Other cell types
Cytogenetic analysis

Hamster
40 MG/L
Cell Type: lung
Cytogenetic analysis

Hamster
25 MG/L
Cell Type: ovary
Sister chromatid exchange

CHRONIC EXPOSURE - TERATOGEN

Species: Rat
Dose: 3 GM/KG
Route of Application: Intraperitoneal
Exposure Time: (30D MALE)
Result: Effects on Embryo or Fetus: Fetal death.

Species: Mouse
Dose: 2560 MG/KG
Route of Application: Subcutaneous
Exposure Time: (6-15D PREG)

Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Craniofacial (including nose and tongue). Specific Developmental Abnormalities: Cardiovascular (circulatory) system.

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Mouse
Dose: 7680 MG/KG
Route of Application: Subcutaneous
Exposure Time: (6-15D PREG)
Result: Effects on Fertility: Litter size (e.g.; # fetuses per litter; measured before birth).

12 - Ecological Information

No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

UN#: 2811
Class: 6.1
PG: I
Proper Shipping Name: Toxic solid, organic, n.o.s.

IMDG

UN#: 2811
Class: 6.1
PG: II
Proper Shipping Name: Toxic solid, organic, n.o.s.
Marine Pollutant: No
Severe Marine Pollutant: No
Technical Name: Required

IATA

UN#: 2811
Class: 6.1
PG: II
Proper Shipping Name: Toxic solid, organic, n.o.s.
Inhalation Packing Group I: No
Technical Name: Required

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

INDICATION OF DANGER: Xn

Harmful.

R-PHRASES: 22 36/37/38 43

Harmful if swallowed. Irritating to eyes, respiratory system and skin. May cause sensitization by skin contact.

S-PHRASES: 26 36/37

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective

clothing and gloves.

16 - Other Information

WARRANTY

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 Inc., 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. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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