4,4-**DIAMINO DIPHENYL ETHER** **CAS NO 101-80-4**	**MATERIAL SAFETY DATA SHEET** **SDS/MSDS**

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

1.1 Product identifiers

Product name : 4,4-Diamino Diphenyl Ether

CAS-No. : 101-80-4

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

Identified uses : Laboratory chemicals, Industrial & for professional use only.

1.3 Details of the supplier of the safety data sheet

Company : Central Drug House (P) Ltd
7/28 Vardaan House
Ansari Road Daryaganj
New Delhi-110002
INDIA

Telephone : +91 11 49404040
Email : care@cdhfinechemical.com

1.4 Emergency telephone number

Emergency Phone # : +91 11 49404040 (9:00am - 6:00 pm) [Office hours]

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 3), H331
Acute toxicity, Dermal (Category 3), H311
Skin sensitisation (Category 1), H317
Germ cell mutagenicity (Category 1B), H340
Carcinogenicity (Category 1B), H350
Reproductive toxicity (Category 2), H361
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008
Pictogram

Signal word Danger

Hazard statement(s)
H301 + H311 + H331 Toxic if swallowed, in contact with skin

H317	May cause an allergic skin reaction.
H340	May cause genetic defects.
H350	May cause cancer.
H361	Suspected of damaging fertility or the unborn child.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P261	Avoid breathing dust.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P311	Call a POISON CENTER /doctor.

Supplemental Hazard Statements: none

Restricted to professional users.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : 4-Aminophenyl ether
4,4′-Diaminodiphenyl ether

Formula : $C_{12}H_{12}N_2O$

Molecular weight : 200.24 g/mol

CAS-No. : 101-80-4

EC-No. : 202-977-0

Index-No. : 612-199-00-7

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component		Classification	Concentration
p-Aminophenyl ether Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (E) No. 1907/2006 (REACH)			
CAS-No.	101-80-4	Acute Tox. 3; Skin Sens. 1; Muta. 1B; Carc. 1B; Repr. 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H331, H311, H317, H340, H350, H361, H400, H410 M-Factor - Aquatic Acute: 1	<= 100 %
EC-No.	202-977-0		
Index-No.	612-199-00-7		

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

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.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

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

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Nitrogen oxides (NOx)

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 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.

6.3 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.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Avoid exposure - obtain special instructions before use.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

8.2 Exposure controls

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

Personal protective equipment

Eye/face 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 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.

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.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use (EN 143) respirator cartridges as a backup to engineering controls. If th full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

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

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: white
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 188 - 192 °C - lit.
f)	Initial boiling point and boiling range	396.6 - 397.01 °C at 975.0 hPa
g)	Flash point	219 °C - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	10 mmHg at 240 °C
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 0.72
p)	Auto-ignition temperature	> 192 °C
q)	Decomposition temperature	No data available

r) Viscosity No data available

s) Explosive properties No data available

t) Oxidizing properties No data available

9.2 Other safety information

Surface tension 72.5 mN/m at 20 °C

SECTION 10: Stability and reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx)
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

No data availablep-Aminophenyl ether

Skin corrosion/irritation

Skin - Rabbit(p-Aminophenyl ether)
Result: No skin irritation - 4 h

Serious eye damage/eye irritation

Eyes - Rabbit(p-Aminophenyl ether)
Result: Mild eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitisation

- Guinea pig(p-Aminophenyl ether)
Result: May cause sensitisation by skin contact.

Germ cell mutagenicity

May alter genetic material.(p-Aminophenyl ether)
In vivo tests showed mutagenic effects(p-Aminophenyl ether)
Hamster(p-Aminophenyl ether)
ovary
Result: positive
Mutagenicity (micronucleus test)(p-Aminophenyl ether)
Mouse - male
Result: positive

Carcinogenicity

This product is or contains a component that has been reported to be possi classification.(p-Aminophenyl ether)
Possible human carcinogen(p-Aminophenyl ether)

IARC: 2B - Group 2B: Possibly carcinogenic to humans (p-Aminophenyl ether)

Reproductive toxicity
Suspected human reproductive toxicant(p-Aminophenyl ether)

Specific target organ toxicity - single exposure
No data available(p-Aminophenyl ether)

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available(p-Aminophenyl ether)

Additional Information
RTECS: BY7900000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.(p-Aminophenyl ether)

SECTION 12: Ecological information

12.1 Toxicity

No data available

Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 0.92 mg/l - 48 h(p- Aminophenyl ether)
Toxicity to algae	static test EC50 - Scenedesmus capricornutum (fresh water algae) - 21.7 mg/l - 72 h(p-Aminophenyl ether)
Toxicity to bacteria	Respiration inhibition EC50 - Sludge Treatment - > 1,000 mg/l - 3 h(p- Aminophenyl ether) (OECD Test Guideline 209)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d(p-Aminophenyl ether) Result: 7.6 % - Not biodegradable (OECD Test Guideline 301D)

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available(p-Aminophenyl ether)

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

Very toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chem scrubber.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

ADR/RID: 2811 IMDG: 2811 IATA: 2811

14.2 UN proper shipping name

ADR/RID: TOXIC SOLID, ORGANIC, N.O.S. (p-Aminophenyl ether)
IMDG: TOXIC SOLID, ORGANIC, N.O.S. (p-Aminophenyl ether)
IATA: Toxic solid, organic, n.o.s. (p-Aminophenyl ether)

14.3 Transport hazard class(es)

ADR/RID: 6.1 IMDG: 6.1 IATA: 6.1

14.4 Packaging group

ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user

No data available

SECTION 15: Regulatory information

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

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H301	Toxic if swallowed.
H301 + H311 + H331	Toxic if swallowed, in contact with skin or if inhaled
H311	Toxic in contact with skin.
H317	May cause an allergic skin reaction.
H331	Toxic if inhaled.
H340	May cause genetic defects.
H350	May cause cancer.
H361	Suspected of damaging fertility or the unborn child.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Further information

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. Central Drug House (P) Ltd and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.cdhfinechemical.com for additional terms and conditions of sale.