

Diphenylamine

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

1.1. Product identifier

Product name:	Diphenylamine
CAS Number:	122-39-4
EC Number:	204-539-4
EU Reach Registration Number:	01-2119488966-13-0014 01-2119488966-13-0012(F)

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

Product use:	Used for synthesizing of rubber antioxidant such as BLE, AM, 350, DFC-34, DDA, KY-405(CD), ODPA, ADPA and 4-Aminodiphenylamine to produce top grade antioxidant such as 4010NA, 4020 etc. Not edible, only for professional use.
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1.3 Details of the supplier of the safety data sheet

Company name:	East Harbour Group Ltd 20 Clough Road, Severalls Industrial Park Colchester, Essex, CO4 9QS United Kingdom
Telephone:	+44 (0) 333 242 0100
Email:	info@eastharbourgroup.com

1.4 Emergency telephone number

Emergency telephone:	0800 246 1274
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Section 2: Hazardous identification

2.1 Classification of the substance or mixture

Physical Hazards

Not Classified

Health Hazards

Acute toxicity-Oral Category 3
Acute toxicity-Dermal Category 3
Acute toxicity-inhalation Category 3
Serious eye damage/eye irritation Category 1
Skin sensitization Category 1
Carcinogenicity Category 1B
Reproductive toxicity Category 2
Specific target organ toxicity - Single exposure Category 1 (Central nerve system, blood system)
Specific target organ toxicity - Single exposure Category 3 (Respiratory tract irritation)
Specific target organ toxicity - Repeated exposure Category 2 (Blood system, kidney)

Diphenylamine

Environmental Hazards

Hazardous to the aquatic environment-Acute hazard Category 1

Hazardous to the aquatic environment-Chronic hazard Category 1

The hazards not mentioned are not applicable or no data available.

2.2 Label elements

Pictogram



Signal word

Danger

Hazard Statements

H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H331	Toxic if inhaled.
H318	Causes serious eye damage.
H317	May cause an allergic skin reaction.
H350	May cause cancer.
H361	Suspected of damaging fertility or the unborn child.
H370	Causes damage to organs (Central nervous system, blood system).
H335	May cause respiratory irritation.
H373	May cause damage to organs through prolonged or repeated exposure (Blood system, kidney).
H410	Very toxic to aquatic life with long lasting effects.

Prevention Precautionary Statements

P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P203	Obtain, read and follow all safety instructions before use.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P273	Avoid release to the environment.

Response Precautionary Statements:

P301+P316	IF SWALLOWED: Get emergency medical help immediately.
P330	Rinse mouth.
P302+P352	IF ON SKIN: Wash with plenty of water.
P361+P364	Take off immediately all contaminated clothing and wash it before reuse.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P354+P338	IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+P317	If skin irritation or rash occurs: Get medical help.
P316	Get emergency medical help immediately.
P391	Collect spillage.

Diphenylamine

Storage Precautionary Statements

P405 Store locked up.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

Disposal Precautionary Statements

P501 Dispose of contents/container in accordance with local/regional/national/international regulation.

Other Hazards

No data available.

Section 3: Composition/information on ingredients

Product name Diphenylamine

Ingredient	Concentration	CAS No.	EC No.
Diphenylamine	99.60%	122-39-4	204-539-4
Water	0.2%	7732-18-5	231-791-2
Aniline	0.1%	62-53-3	200-539-3
Ethanol insoluble matters	0.05%	/	/
Impurities	0.05%	/	/

Section 4: First aid measures

Skin Exposure

In case of skin contact, flush with copious amounts of water. Call a physician immediately.

Eye Exposure

In case of contacting with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician immediately.

Inhalation Exposure

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

Oral Exposure

If swallowed, wash out mouth with water provided person is conscious. Do NOT induce vomiting. Call a physician immediately.

Most Important Symptoms/Effects, Acute and Delayed

No data available.

Indication of Immediate Medical Attention and Special Treatment Needed, if Necessary

No data available.

Section 5: Fire-fighting measures

Suitable Extinguishing Media

Diphenylamine

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

Specific Hazards Arising from the Chemical

Toxic solid. Environmentally hazardous substances. Take care as it may decompose upon combustion or in high temperatures to generate hazardous Carbon oxides, nitrogen oxides.

Special Protective Action for Fire-fighters

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Fire extinguishing work is done from the windward. Uninvolved persons should evacuate to a safe place.

Section 6: Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment. Remove all sources of ignition. Avoid breathing dust. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Entry to non-involved personnel should be controlled around the leakage area by roping off.

Environmental Precautions

Prevent further leakage or spillage if safe to do so. Avoid entering drains. Avoid release to the environment. Collect spillage.

Methods and Materials for Containment and Cleaning up

Sweep up with spade and transfer to a dry, clean, lidded container for disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7: Handling and storage

Precautions for Safe Handling

Operators should be trained and strictly abide by operating procedures. Wear anti-permeability overalls and anti-poison penetration gloves. Do not inhale. Do not contacting with eyes, skin and clothing. Prevent generation of dust. Handling is performed in a well-ventilated place. Keep away from ignition sources, heat and flame. Incompatibilities: strong oxidizing agents. Handling and unloading should be light, to prevent packaging broken, damp and cause losses. Working place should be equipped with appropriate varieties and quantities of firefighting equipment and leakage emergency treatment equipment.

Conditions for Safe Storage, Including Any Incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Keep away from ignition sources, heat and flame. Incompatibilities: strong oxidizing agents. Storage place should be equipped with appropriate varieties and quantities of firefighting equipment and leakage emergency treatment equipment.

Section 8: Exposure controls/personal protection

Control Parameters

GBZ 2.1-2019 Occupational Exposure Limits for Hazardous Agents in the Workplace - Part 1: Chemical Hazardous Agents:

Diphenylamine: PC-TWA 10 mg/m³

Diphenylamine

Aniline: PC-TWA 3 mg/ m³: Remarks: skin

ACGIH:

Diphenylamine: TLV-TWA 10 mg/m³ Aniline: TLV-TWA 7.6 mg/ m³ (2 ppm) (skin).

Appropriate Engineering Controls

Mechanical exhaust required. Safety shower and eye bath.

Individual Protection Measures

Eye/Face Protection

Wear chemical safety glasses.

Skin Protection

Hand Protection

Wear anti-poison penetration gloves.

Body Protection

Wear anti-permeability overalls.

Respiratory Protection

Wear government approved respirator.

Thermal Hazards

No data available.

Other Protect

No smoking, drinking and eating at working site. Wash thoroughly after handling.

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	White granule
Odour	Weak odour
pH Value	Neutral
Solubility	Insoluble in water
Melting Point/Freezing Point	52.85 °C
Boiling Point, Initial Boiling Point and Boiling Range	302
Flash Point (Closed Cup)	152 °C
Density/Relative Density	1.16
Kinematic Viscosity	Not applicable
Lower/Upper Explosion Limit/Flammability Limit	No data available
Vapour Pressure	1.33 (108 °C)
Relative Vapor Density	5.82
Partition Coefficient N-Octanol/Water (Log Value)	3.34
Auto Ignition Temperature	No data available
Decomposition Temperature	No data available
Particle Characteristics	No data available
Flammability (Solid, Gas)	The substance is not classified in Division 4. 1 Flammable Solids.

Diphenylamine

Section 10: Stability and Reactivity

Reactivity

No data available.

Chemical Stability

Stable under normal temperatures and pressures.

Possibility of Hazardous Reactions

No data available.

Conditions to Avoid

No data available.

Incompatible Materials

Strong oxidizing agents.

Hazardous Decomposition Products

Carbon oxides, nitrogen oxides, etc.

Section 11: Toxicological Information

Acute Toxicity

Toxic if swallowed. Toxic in contact with skin. Toxic if inhaled.

Aniline: Rat oral toxicity LD₅₀. 250 mg/kg; Rabbit dermal toxicity LD₅₀. 840 mg/kg; Rat inhalation toxicity LCs. 3.3 mg/1- 4 h

Skin Corrosion/Irritation

No data available.

Serious Eye Damage/Irritation

Causes serious eye irritation.

Respiratory Sensitization

No data available.

Skin Sensitization

May cause an allergic skin reaction.

Germ Cell Mutagenicity

No data available.

Carcinogenicity

Aniline: IARC: Group 2A (Probably carcinogenic to humans) This product may cause cancer.

Reproductive Toxicity

Suspected of damaging fertility or the unborn child.

Specific Target Organ Toxicity -Single Exposure

Diphenylamine

Causes damage to organs (Central Nerve System, blood System).
May cause respiratory irritation.

Specific Target Organ Toxicity - Repeated Exposure

May cause damage to organs through prolonged or repeated exposure (Blood System, kidney).

Aspiration Hazard

No data available

Section 12: Ecological Information

Toxicity

Diphenylamine: Toxicity to fish LC₅₀ - Pimephales promelas-3. 79 mg/l — 96. 0 h LC₅₀ - Oryzias latipes- 2. 2 mg/l - 48 h Remarks: (IUCLID) Toxicity to daphnia and other aquatic invertebrates EC₅₀ - Daphnia magna - 2 mg/l - 48 h (OECD Test Guideline 202)

Toxicity to algae EC₅₀ - Pseudokirchneriella subcapitata — 2.17 mg/l - 72 h (OECD Test Guideline 201)

Aniline

Toxicity to fish flow-through test LC₅₀- Oncorhynchus mykiss (rainbow trout) — 10.6 mg/l — 96.0 h Remarks: (ECHA) Toxicity to daphnia and other aquatic invertebrates semi-static test EC₅₀ - Daphnia magna (Water flea) -0.16 mg/l - 48 h (US-EPA)

Toxicity to algae static test ErC₅₀ - Chlorella pyrenoidosa - 175 mg/l - 72 h (OECD Test Guideline 201)

Persistence and Degradability

Diphenylamine: Biodegradability Aerobic (OECD Test Guideline 301D)

Aniline: Biodegradability aerobic - Exposure time 30 d Result: ca. 90 % - Readily biodegradable. (OECD Test Guideline 301D)

Bio accumulative Potential

No data available.

Mobility in Soil

No data available.

Other Adverse Effects

No data available.

Section 13: Disposal considerations

Disposal Methods

Recycle as far as possible. If unable to recycle, it is recommended to use incineration method for disposal under supervision. This product should not be disposed of by discharge into sewers. Return empty containers to the manufacturer or dispose of them in accordance with national and local regulations. Follow the relevant provisions of national and local regulations before disposal. It is recommended to be disposed of by a qualified chemical waste treatment department.

Diphenylamine

Section 14: Transport Information

RID/ADR (2021 Edition)

Shipping Name	Toxic solid, organic, n. o. s. (Diphenylamine)
Hazard Class	6.1
UN Number	UN2811
Packing Group	III

IATA DGR (63rd Edition)

Shipping Name	Toxic solid, organic, n. o. s. (Diphenylamine)
Hazard Class	6.1
UN Number	UN2811
Packing Group	III

IMO IMDG Code (2020 Edition)

Shipping Name	Toxic solid, organic, n. o. s. (Diphenylamine)
Hazard Class	6.1
UN Number	UN2811
Packing Group	III
Ems No.	F-A, S-A
Marine Pollutant	Yes

Environmental Hazards

Yes.

Special Precautions for User

No data available.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

Section 15: Regulatory Information

Montreal Protocol

Not listed.

Stockholm Convention

Not listed.

Rotterdam Convention

Not listed.

EINECS/ELINCS

Diphenylamine, Water, Aniline in the product is listed.

TSCA

Diphenylamine, Water, Aniline in the product is listed.

Diphenylamine

IECSC

Diphenylamine, Water, Aniline in the product is listed.

Section 16: Other Information**Abbreviations and Acronyms**

CAS	Chemical Abstracts Service
EC	European Commission
PC-TWA	Permissible concentration-time weighted average
ACGIH	American Conference of Governmental Industrial Hygienists
TLV-TWA	Threshold limit value-time weighted average LCs. Median lethal dose
IUCLID	International Uniform Chemical Information Database ECs. Effective concentration of substance that causes 50% of the maximum response
OECD	Organization for Economic Cooperation and Development
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
IATA DGR	International Air Transport Association Dangerous Goods Regulations
IMO IMDG CODE	International Maritime Organization International Maritime Dangerous Goods Code
MARPOL	International Convention for the Prevention of Pollution from Ships
IBC Code	International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk
ELINCS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
TSCA	Toxic Substances Control Act
IECSC	Inventory of Existing Chemical Substances in China

Other Information

This MSDS is compiled based on the information of our current knowledge. This MSDS shall be used only as a guide. The users of this MSDS must make independent judgments on the correctness and completeness and then decide its suitability according to the actual situation. The users should take the relevant legal responsibilities for the consequences of use.