

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**Trade name **Diphenylamine**

Stock number: A18265, L04729

CAS Number:

122-39-4

EC number:

204-539-4

Index number:

612-026-00-5

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

Identified use: SU24 Scientific research and development

**1.3 Details of the supplier of the safety data sheet**

Manufacturer/Supplier:

Thermo Fisher (Kandel) GmbH

Zeppelinstr. 7b

76185 Karlsruhe / Germany

Tel: +49 (0) 721 84007 280

Fax: +49 (0) 721 84007 300

Email: tech@alfa.com

www.alfa.com

Informing department: Product safety Tel + +049 (0) 7275 988687-0

**1.4 Emergency telephone number:**

Carechem 24: +44 (0) 1235 239 670 (Multi-language emergency number)

Poison Information Center Mainz

www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008



GHS06 skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 3 H311 Toxic in contact with skin.

Acute Tox. 3 H331 Toxic if inhaled.



GHS08 health hazard

STOT RE 2 H373 May cause damage to the kidneys, the liver, the spleen, the digestive system and the blood through prolonged or repeated exposure.  
Route of exposure: Oral, Dermal.

GHS09 environment

Aquatic Acute 1 H400 Very toxic to aquatic life.

Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.

**Classification according to Directive 67/548/EEC or Directive 1999/45/EC**

T; Toxic

R23/24/25: Toxic by inhalation, in contact with skin and if swallowed.

N; Dangerous for the environment

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R33: Danger of cumulative effects.

Information concerning particular hazards for human and environment: Not applicable

Other hazards that do not result in classification No information known.

**2.2 Label elements**

Labelling according to Regulation (EC) No 1272/2008 The substance is classified and labelled according to the CLP regulation.

**Hazard pictograms**

GHS06 GHS08 GHS09

Signal word Danger

**Hazard statements**

H301 Toxic if swallowed.

H311 Toxic in contact with skin.

H331 Toxic if inhaled.

H373 May cause damage to the kidneys, the liver, the spleen, the digestive system and the blood through prolonged or repeated exposure. Route of exposure: Oral, Dermal.

H410 Very toxic to aquatic life with long lasting effects.

**Precautionary statements**

P280 Wear protective gloves / protective clothing.

P273 Avoid release to the environment.

P309 IF exposed or if you feel unwell:

P310 Immediately call a POISON CENTER/doctor/...

P302+P352 IF ON SKIN: Wash with plenty of water/...

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

**2.3 Other hazards****Results of PBT and vPvB assessment**

PBT: Not applicable.

vPvB: Not applicable.

**SECTION 3: Composition/information on ingredients****3.1 Substances**

CAS# Designation:

122-39-4 Diphenylamine

Trade name **Diphenylamine**

Identification number(s):  
EC number: 204-539-4  
Index number: 612-026-00-5

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**SECTION 4: First aid measures**

**4.1 Description of first aid measures**

**General information**

Instantly remove any clothing soiled by the product.  
Remove breathing apparatus only after soiled clothing has been completely removed.  
In case of irregular breathing or respiratory arrest provide artificial respiration.

**After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

Seek immediate medical advice.

**After skin contact**

Instantly wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

**After eye contact** Rinse opened eye for several minutes under running water. Then consult doctor.

**After swallowing** Do not induce vomiting; instantly call for medical help.

**4.2 Most important symptoms and effects, both acute and delayed** Methaemoglobinaemia

**4.3 Indication of any immediate medical attention and special treatment needed** No further relevant information available.

**SECTION 5: Firefighting measures**

**5.1 Extinguishing media**

**Suitable extinguishing agents** CO<sub>2</sub>, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

**5.2 Special hazards arising from the substance or mixture**

If this product is involved in a fire, the following can be released:

Carbon monoxide and carbon dioxide

Nitrogen oxides (NO<sub>x</sub>)

Possibly Hydrogen cyanide (HCN)

**5.3 Advice for firefighters**

**Protective equipment:**

Wear self-contained breathing apparatus.

Wear full protective suit.

**SECTION 6: Accidental release measures**

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

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

**6.2 Environmental precautions:** Do not allow material to be released to the environment without proper governmental permits.

**6.3 Methods and material for containment and cleaning up:**

Dispose of contaminated material as waste according to section 13.

Ensure adequate ventilation.

**Prevention of secondary hazards:** No special measures required.

**6.4 Reference to other sections**

See Section 7 for information on safe handling

See section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

**SECTION 7: Handling and storage**

**7.1 Precautions for safe handling**

Handle under dry protective gas.

Keep containers tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation/exhaustion at the workplace.

Open and handle container with care.

**Information about protection against explosions and fires:** No information known.

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

**Storage**

**Requirements to be met by storerooms and containers:** No special requirements.

**Information about storage in one common storage facility:**

Store away from oxidising agents.

Store away from air.

Store in the dark.

**Further information about storage conditions:**

Store under dry inert gas.

This product is air sensitive.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Protect from the effects of light.

Store in a locked cabinet or with access restricted to technical experts or their assistants.

**7.3 Specific end use(s)** No further relevant information available.

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

**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**8.1 Control parameters**

**Components with critical values that require monitoring at the workplace:**

**122-39-4 Diphenylamine (100,0%)**

AGW (Germany) Long-term value: 5 E mg/m<sup>3</sup>  
2 (II);DFG, Y, H

REL (USA) Long-term value: 10 mg/m<sup>3</sup>

TLV (USA) Long-term value: 10 mg/m<sup>3</sup>

**Additional information:** No data

**8.2 Exposure controls**

**Personal protective equipment**

**General protective and hygienic measures**

The usual precautionary measures should be adhered to in handling the chemicals.

Keep away from foodstuffs, beverages and food.

Instantly remove any soiled and impregnated garments.

Wash hands during breaks and at the end of the work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

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**Breathing equipment:** Use self-contained respiratory protective device in emergency situations.

**Protection of hands:**

Check protective gloves prior to each use for their proper condition.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

**Material of gloves** Impervious gloves

**Penetration time of glove material (in minutes)** Not determined

**Eye protection:** Safety glasses

**Body protection:** Protective work clothing.

**SECTION 9: Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

**General Information**

**Appearance:**

**Form:** Flakes  
**Colour:** Off-white  
**Smell:** weak  
**Odour threshold:** Not determined.

**pH-value:** Not applicable.

**Change in condition**

**Melting point/Melting range:** 52-56 °C  
**Boiling point/Boiling range:** 302 °C  
**Sublimation temperature / start:** Not determined

**Flash point:** 152 °C  
**Inflammability (solid, gaseous)** Not determined.  
**Ignition temperature:** 630 °C  
**Decomposition temperature:** Not determined  
**Self-inflammability:** Not determined.

**Danger of explosion:** Product is not explosive.

**Critical values for explosion:**

**Lower:** Not determined  
**Upper:** Not determined  
**Steam pressure:** Not applicable.  
**Density at 20 °C** 1,16 g/cm<sup>3</sup>  
**Relative density** Not determined.  
**Vapour density** Not applicable.  
**Evaporation rate** Not applicable.

**Solubility in / Miscibility with**  
**Water at 25 °C:** 0,05 g/l  
**Partition coefficient (n-octanol/water):** Not determined.

**Viscosity:**  
**dynamic:** Not applicable.  
**kinematic:** Not applicable.

**9.2 Other information** No further relevant information available.

**SECTION 10: Stability and reactivity**

**10.1 Reactivity** No information known.

**10.2 Chemical stability** Stable under recommended storage conditions.

**Thermal decomposition / conditions to be avoided:** No decomposition if used and stored according to specifications.

**10.3 Possibility of hazardous reactions** No dangerous reactions known

**10.4 Conditions to avoid** No further relevant information available.

**10.5 Incompatible materials:**

Oxidising agents

Air

Light

**10.6 Hazardous decomposition products:**

Carbon monoxide and carbon dioxide

Nitrogen oxides (NO<sub>x</sub>)

Possibly Hydrogen cyanide (HCN)

**SECTION 11: Toxicological information**

**11.1 Information on toxicological effects**

**Acute toxicity:**

Toxic in contact with skin.

Toxic in contact with skin.

Toxic if inhaled.

Toxic if swallowed.

Danger by skin resorption.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

**LD/LC50 values that are relevant for classification:**

Oral | LD50 | 1120 mg/kg (rat)

**Skin irritation or corrosion:** May cause irritation

**Eye irritation or corrosion:** May cause irritation

**Sensitization:** No sensitizing effect known.

**Germ cell mutagenicity:** No effects known.

**Carcinogenicity:**

ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

**Reproductive toxicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for this substance.

**Specific target organ system toxicity - repeated exposure:**

May cause damage to the kidneys, the liver, the spleen, the digestive system and the blood through prolonged or repeated exposure. Route of exposure: Oral,

Dermal.

**Specific target organ system toxicity - single exposure:** No effects known.

**Aspiration hazard:** No effects known.

**Other information (about experimental toxicology):** Reproductive effects have been observed on tests with laboratory animals.

**Subacute to chronic toxicity:**

Absorption into the body may lead to the formation of methemoglobin, producing cyanosis, and marked fall in blood pressure leading to collapse, coma and possibly death. Onset may be delayed 2-4 hours or longer.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.

**Additional toxicological information:**

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

Toxic in contact with skin.

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### SECTION 12: Ecological information

#### 12.1 Toxicity

**Aquatic toxicity:** No further relevant information available.

**12.2 Persistence and degradability** No further relevant information available.

**12.3 Bioaccumulative potential** No further relevant information available.

**12.4 Mobility in soil** No further relevant information available.

#### Ecotoxicological effects:

**Remark:** Very toxic for fish

#### Additional ecological information:

#### General notes:

Do not allow material to be released to the environment without proper governmental permits.

Water danger class 3 (Self-assessment): extremely hazardous for water.

Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into soil.

Also poisonous for fish and plankton in water bodies.

May cause long lasting harmful effects to aquatic life.

Avoid transfer into the environment.

Very toxic for aquatic organisms

#### 12.5 Results of PBT and vPvB assessment

**PBT:** Not applicable.

**vPvB:** Not applicable.

**12.6 Other adverse effects** No further relevant information available.

### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

#### Recommendation

Hand over to disposers of hazardous waste.

Must be specially treated under adherence to official regulations.

Consult state, local or national regulations for proper disposal.

#### Uncleaned packagings:

**Recommendation:** Disposal must be made according to official regulations.

### SECTION 14: Transport information

#### UN-Number

ADR, IMDG, IATA

UN3077

#### 14.2 UN proper shipping name

ADR

3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(Diphenylamine)

IMDG

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

IATA

(Diphenylamine), MARINE POLLUTANT

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

(Diphenylamine)

#### 14.3 Transport hazard class(es)

ADR



Class

Label

IMDG, IATA

9 (M7) Miscellaneous dangerous substances and articles.

9



Class

Label

9 Miscellaneous dangerous substances and articles.

9

#### Packing group

ADR, IMDG, IATA

III

#### 14.5 Environmental hazards:

Marine pollutant:

Yes (P)

Symbol (fish and tree)

Special marking (ADR):

Symbol (fish and tree)

Special marking (IATA):

Symbol (fish and tree)

#### 14.6 Special precautions for user

Kemler Number:

Warning: Miscellaneous dangerous substances and articles.

EMS Number:

90

F-A,S-F

#### 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC

Code

Not applicable.

#### Transport/Additional information:

ADR

Excepted quantities (EQ):

E1

Limited quantities (LQ)

5 kg

Transport category

3

Tunnel restriction code

E

UN "Model Regulation":

UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(Diphenylamine), 9, III

### SECTION 15: Regulatory information

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

**Australian Inventory of Chemical Substances** Substance is listed.

**Standard for the Uniform Scheduling of Drugs and Poisons** Substance is not listed.

#### National regulations

#### Information about limitation of use:

Employment restrictions concerning young persons must be observed.

For use only by technically qualified individuals.

**Water hazard class:** Water danger class 3 (Self-assessment): extremely hazardous for water.

#### Other regulations, limitations and prohibitive regulations

**ELINCS (European List of Notified Chemical Substances)** Substance is not listed.

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Trade name **Diphenylamine**

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**Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.** Substance is not listed.  
**The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.**

Substance is not listed.

**Annex XIV of the REACH Regulations (requiring Authorisation for use)** Substance is not listed.

**15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

**SECTION 16: Other information**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing SDS:** Global Marketing Department

**Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organization

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

P: Marine Pollutant

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

vPvB: very Persistent and very Bioaccumulative

ACGIH: American Conference of Governmental Industrial Hygienists (USA)

OSHA: Occupational Safety and Health Administration (USA)

NTP: National Toxicology Program (USA)

IARC: International Agency for Research on Cancer

EPA: Environmental Protection Agency (USA)

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