

p-Phenylenediamine

Version number: GHS 2.0
Replaces version of: 2019-07-25 (GHS 1)

Revision: 2024-04-29

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

1.1 Product identifier

Identification of the substance **p-Phenylenediamine**
CAS number 106-50-3
Alternative name(s) benzene-1,4-diamine
Article number A0023765

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

Relevant identified uses General use

1.3 Details of the supplier of the safety data sheet

Chemos GmbH & Co. KG
Sonnenring 7
84032 Altdorf
Germany

Telephone: +49 871-966346-0
Telefax: +49 871-966346-13
e-mail: chemos@chemos.de
Website: <http://www.chemos.de/>

e-mail (competent person) chemos@chemos.de

1.4 Emergency telephone number

Emergency information service +49 89 1 92 40

| Poison centre | | | | |
|----------------|---|----------------------|-------------------|---------|
| Country | Name | Postal code/ city | Telephone | Telefax |
| United Kingdom | National Poison Information Centre Medical Toxicology Unit | SE14 5ER Lon- don | +44 171 635 91 91 | |

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

| Section | Hazard class | Category | Hazard class and cat- egory | Hazard state- ment |
|---------|---|----------|--------------------------------|-----------------------|
| 3.1O | acute toxicity (oral) | 3 | Acute Tox. 3 | H301 |
| 3.1D | acute toxicity (dermal) | 3 | Acute Tox. 3 | H311 |
| 3.1I | acute toxicity (inhal.) | 3 | Acute Tox. 3 | H331 |
| 3.3 | serious eye damage/eye irritation | 2 | Eye Irrit. 2 | H319 |
| 3.4S | skin sensitisation | 1 | Skin Sens. 1 | H317 |
| 4.1A | hazardous to the aquatic environment - acute hazard | 1 | Aquatic Acute 1 | H400 |
| 4.1C | hazardous to the aquatic environment - chronic hazard | 1 | Aquatic Chronic 1 | H410 |

For full text of abbreviations: see SECTION 16.

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The most important adverse physicochemical, human health and environmental effects
Spillage and fire water can cause pollution of watercourses.

2.2 Label elements

Labelling

- Signal word danger

- Pictograms

GHS06, GHS09



- Hazard statements

H301+H311+H331 Toxic if swallowed, in contact with skin or if inhaled.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H410 Very toxic to aquatic life with long lasting effects.

- Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P311 Call a POISON CENTER/doctor.
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
P362+P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose of contents/container to industrial combustion plant.

2.3 Other hazards

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance p-phenylenediamine

Identifiers

CAS No 106-50-3

EC No 203-404-7

| Specific Conc. Limits | M-Factors | ATE | Exposure route |
|-----------------------|-------------------------|--|---|
| - | M-factor (chronic) = 10 | 100 mg/kg 300 mg/kg >3 mg/l/4h >0.5 mg/l/4h | oral dermal inhalation: vapour inhalation: dust/mist |

Molecular formula C₆H₈N₂

Molar mass 108.1 g/mol

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SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Provide fresh air.

Following skin contact

Rinse skin with water/shower.

Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms and effects are not known to date.

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water, Foam, Alcohol resistant foam, ABC-powder

Unsuitable extinguishing media

Water jet

5.2 Special hazards arising from the substance or mixture

Deposited combustible dust has considerable explosion potential.

Hazardous combustion products

Nitrogen oxides (NO_x), Carbon monoxide (CO), Carbon dioxide (CO₂)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

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6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. If substance has entered a water course or sewer, inform the responsible authority.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains, Take up mechanically

Advice on how to clean up a spill

Take up mechanically.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Recommendations

- Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Take precautionary measures against static discharge. Use only in well-ventilated areas. Ground/bond container and receiving equipment.

- Specific notes/details

Dust deposits may accumulate on all deposition surfaces in a technical room. The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Managing of associated risks

- Explosive atmospheres

Removal of dust deposits.

- Ventilation requirements

Keep any substance that emits harmful vapours or gases in a place that allows these to be permanently extracted. Use local and general ventilation.

- Packaging compatibilities

Only packagings which are approved (e.g. acc. to ADR) may be used.

7.3 Specific end use(s)

See section 16 for a general overview.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

| Occupational exposure limit values (Workplace Exposure Limits) | | | | | | | | | | | |
|--|--------------------|----------|------------|-----------|--------------------------|------------|---------------------------|-----------------|--------------------------------|----------|-----------|
| Country | Name of agent | CAS No | Identifier | TWA [ppm] | TWA [mg/m ³] | STEL [ppm] | STEL [mg/m ³] | Ceiling-C [ppm] | Ceiling-C [mg/m ³] | Notation | Source |
| GB | dust | | WEL | | 10 | | | | | i | EH40/2005 |
| GB | dust | | WEL | | 4 | | | | | r | EH40/2005 |
| GB | p-phenylenediamine | 106-50-3 | WEL | | 0.1 | | | | | H | EH40/2005 |

Notation

- Ceiling-C ceiling value is a limit value above which exposure should not occur
- H absorbed through the skin
- i inhalable fraction
- r respirable fraction
- STEL short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
- TWA time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours
- time-weighted average (unless otherwise specified)

Human health values

| Relevant DNELs and other threshold levels | | | | |
|---|-------------------------|------------------------------------|-------------------|----------------------------|
| Endpoint | Threshold level | Protection goal, route of exposure | Used in | Exposure time |
| DNEL | 0.23 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |
| DNEL | 0.32 mg/kg bw/day | human, dermal | worker (industry) | chronic - systemic effects |
| DNEL | 1.83 µg/cm ² | human, dermal | worker (industry) | acute - local effects |

Environmental values

| Relevant PNECs and other threshold levels | | | | |
|---|-----------------|-----------------------|------------------------------|------------------------------|
| Endpoint | Threshold level | Organism | Environmental compartment | Exposure time |
| PNEC | 0.001 mg/l | aquatic organisms | freshwater | short-term (single instance) |
| PNEC | 0 mg/l | aquatic organisms | marine water | short-term (single instance) |
| PNEC | 0.334 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| PNEC | 0.002 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |
| PNEC | 0 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| PNEC | 0 mg/kg | terrestrial organisms | soil | short-term (single instance) |

8.2 Exposure controls

Appropriate engineering controls
General ventilation.

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Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Skin protection

- Hand protection

In the case of wanting to use the gloves again, clean them before taking off and air them well.

- Other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

Respiratory protection

Particulate filter device (EN 143).

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

| | |
|--|---|
| Physical state | solid |
| Colour | not determined |
| Odour | characteristic |
| Melting point/freezing point | 142 °C |
| Boiling point or initial boiling point and boiling range | 274 °C |
| Flammability | this material is combustible, but will not ignite readily |
| Lower and upper explosion limit | not relevant (solid) |
| Flash point | not applicable |
| Auto-ignition temperature | not determined |
| Decomposition temperature | not relevant |
| pH (value) | not applicable |
| Kinematic viscosity | not relevant |

Solubility(ies)

| | |
|------------------|-----------------|
| Water solubility | 31 g/l at 20 °C |
|------------------|-----------------|

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Partition coefficient

| | |
|---|--------------------------------------|
| Partition coefficient n-octanol/water (log value) | -0.839 (pH value: 8.5, 21 °C) (ECHA) |
|---|--------------------------------------|

| | |
|-----------------|------------------|
| Vapour pressure | 0.01 Pa at 20 °C |
|-----------------|------------------|

Density and/or relative density

| | |
|-------------------------|----------------------|
| Density | 726 g/l at 22 °C |
| Relative vapour density | not relevant (solid) |

| | |
|--------------------------|-------------------|
| Particle characteristics | no data available |
|--------------------------|-------------------|

9.2 Other information

| | |
|--|---|
| Information with regard to physical hazard classes | hazard classes acc. to GHS (physical hazards): not relevant |
|--|---|

Other safety characteristics

| | |
|-----------------|------------------------|
| Surface tension | 80 mN/m (20 °C) (ECHA) |
| Solid content | 100 % |

SECTION 10: Stability and reactivity

10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials".

10.2 Chemical stability

See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

Hints to prevent fire or explosion

The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

10.5 Incompatible materials

Oxidisers

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Classification acc. to GHS

Acute toxicity

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

- Acute toxicity estimate (ATE)

| | |
|-----------------------|--------------|
| Oral | 100 mg/kg |
| Dermal | 300 mg/kg |
| Inhalation: vapour | >3 mg/l/4h |
| Inhalation: dust/mist | >0.5 mg/l/4h |

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

May cause an allergic skin reaction.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

11.2 Information on other hazards

There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity

Very toxic to aquatic life with long lasting effects.

| Aquatic toxicity (acute) | | | |
|--------------------------|----------|---------|---------------|
| Endpoint | Value | Species | Exposure time |
| LC50 | 3.9 mg/l | fish | 96 h |

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| Aquatic toxicity (chronic) | | | |
|----------------------------|-----------|----------------|---------------|
| Endpoint | Value | Species | Exposure time |
| EC50 | 13.4 mg/l | microorganisms | 3 h |

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

| | |
|---------------------------|--------------------------------------|
| n-octanol/water (log KOW) | -0.839 (pH value: 8.5, 21 °C) (ECHA) |
|---------------------------|--------------------------------------|

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

12.6 Endocrine disrupting properties

Information on this property is not available.

12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

SECTION 14: Transport information

14.1 UN number or ID number

| | |
|-----------|---------|
| ADR/RID | UN 1673 |
| IMDG-Code | UN 1673 |
| ICAO-TI | UN 1673 |

14.2 UN proper shipping name

| | |
|-----------|-------------------|
| ADR/RID | PHENYLENEDIAMINES |
| IMDG-Code | PHENYLENEDIAMINES |
| ICAO-TI | Phenylenediamines |

14.3 Transport hazard class(es)

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| | |
|--|--------------------------------------|
| ADR/RID | 6.1 |
| IMDG-Code | 6.1 |
| ICAO-TI | 6.1 |
| 14.4 Packing group | |
| ADR/RID | III |
| IMDG-Code | III |
| ICAO-TI | III |
| 14.5 Environmental hazards | hazardous to the aquatic environment |
| 14.6 Special precautions for user | |
| Provisions for dangerous goods (ADR) should be complied within the premises. | |
| 14.7 Maritime transport in bulk according to IMO instruments | |
| The cargo is not intended to be carried in bulk. | |

Information for each of the UN Model Regulations

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) - Additional information

| | |
|---|--|
| Classification code | T2 |
| Danger label(s) | 6.1, fish and tree |
|   | |
| Environmental hazards | yes (hazardous to the aquatic environment) |
| Special provisions (SP) | 279, 802(ADN) |
| Excepted quantities (EQ) | E1 |
| Limited quantities (LQ) | 5 kg |
| Transport category (TC) | 2 |
| Tunnel restriction code (TRC) | E |
| Hazard identification No | 60 |
| Emergency Action Code | 2X |

Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) - Additional information

| | |
|---|--------------------------|
| Classification code | T2 |
| Danger label(s) | 6.1, fish and tree |
|   | |
| Environmental hazards | yes (hazardous to water) |
| Special provisions (SP) | 279, 802(ADN) |
| Excepted quantities (EQ) | E1 |
| Limited quantities (LQ) | 5 kg |
| Transport category (TC) | 2 |

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Hazard identification No 60
International Maritime Dangerous Goods Code (IMDG) - Additional information
 Marine pollutant YES (hazardous to the aquatic environment)
 Danger label(s) 6.1, fish and tree



Special provisions (SP) 279
 Excepted quantities (EQ) E1
 Limited quantities (LQ) 5 kg
 EmS F-A, S-A
 Stowage category A

International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

Environmental hazards YES (hazardous to the aquatic environment)
 Danger label(s) 6.1



Special provisions (SP) A113
 Excepted quantities (EQ) E1
 Limited quantities (LQ) 10 kg

SECTION 15: Regulatory information

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

15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

| Section | Former entry (text/value) | Actual entry (text/value) | Safety-relevant |
|---------|---|--|-----------------|
| 1.1 | Registration number (REACH): this information is not available | | yes |
| 1.4 | Emergency information service: +49 89 1 92 40 This number is only available during the following office hours: Mon-Fri 9 a.m. - 5 p.m. | Emergency information service: +49 89 1 92 40 | yes |
| 1.4 | | Poison centre: change in the listing (table) | yes |
| 3.1 | | EC No: change in the listing (table) | yes |
| 8.1 | | Occupational exposure limit values (Workplace Exposure Limits): change in the listing (table) | yes |
| 9.1 | Appearance | | yes |

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| Section | Former entry (text/value) | Actual entry (text/value) | Safety-relevant |
|---------|--|---|-----------------|
| 9.1 | Colour: various | Colour: not determined | yes |
| 9.1 | Other safety parameters | | yes |
| 9.1 | | Lower and upper explosion limit: not relevant (solid) | yes |
| 9.1 | Evaporation rate: not determined | | yes |
| 9.1 | Explosion limits of dust clouds: not determined | | yes |
| 9.1 | | Decomposition temperature: not relevant | yes |
| 9.1 | | Kinematic viscosity: not relevant | yes |
| 9.1 | | Density and/or relative density | yes |
| 9.1 | Vapour density: this information is not available | | yes |
| 9.1 | Viscosity: not relevant (solid matter) | | yes |
| 9.1 | Explosive properties: none | | yes |
| 9.1 | Oxidising properties: none | | yes |
| 9.1 | | Relative vapour density: not relevant (solid) | yes |
| 9.1 | | Particle characteristics: no data available | yes |
| 9.2 | | Information with regard to physical hazard classes: hazard classes acc. to GHS (physical hazards): not relevant | yes |
| 9.2 | | Other safety characteristics | yes |
| 11.1 | | - Acute toxicity estimate (ATE): change in the listing (table) | yes |
| 11.2 | | Information on other hazards: There is no additional information. | yes |
| 12.5 | Results of PBT and vPvB assessment: Data are not available. | Results of PBT and vPvB assessment: According to the results of its assessment, this substance is not a PBT or a vPvB. | yes |
| 12.6 | Other adverse effects: Data are not available. | Endocrine disrupting properties: Information on this property is not available. | yes |
| 14.1 | UN number: 1673 | UN number or ID number | yes |
| 14.1 | | ADR/RID: UN 1673 | yes |
| 14.1 | | IMDG-Code: UN 1673 | yes |

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| Section | Former entry (text/value) | Actual entry (text/value) | Safety-relevant |
|---------|--|---|-----------------|
| 14.1 | | ICAO-TI: UN 1673 | yes |
| 14.2 | UN proper shipping name: PHENYLENEDIAMINES | UN proper shipping name | yes |
| 14.2 | | ADR/RID: PHENYLENEDIAMINES | yes |
| 14.2 | | IMDG-Code: PHENYLENEDIAMINES | yes |
| 14.2 | | ICAO-TI: Phenylenediamines | yes |
| 14.3 | Class: 6.1 (toxic substances) (environmentally hazardous) | | yes |
| 14.3 | | ADR/RID: 6.1 | yes |
| 14.3 | | IMDG-Code: 6.1 | yes |
| 14.3 | | ICAO-TI: 6.1 | yes |
| 14.4 | Packing group: III (substance presenting low danger) | Packing group | yes |
| 14.4 | | ADR/RID: III | yes |
| 14.4 | | IMDG-Code: III | yes |
| 14.4 | | ICAO-TI: III | yes |
| 14.7 | UN number: 1673 | | yes |
| 14.7 | Proper shipping name: PHENYLENEDIAMINES | | yes |
| 14.7 | Class: 6.1 | | yes |
| 14.7 | Packing group: III | | yes |
| 14.7 | | Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) - Additional information | yes |
| 14.7 | | Classification code: T2 | yes |
| 14.7 | | Danger label(s): 6.1, fish and tree | yes |
| 14.7 | | Danger label(s): change in the listing (table) | yes |
| 14.7 | | Environmental hazards: yes (hazardous to water) | yes |

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| Section | Former entry (text/value) | Actual entry (text/value) | Safety-relevant |
|---------|--|---|-----------------|
| 14.7 | | Special provisions (SP): 279, 802(ADN) | yes |
| 14.7 | | Excepted quantities (EQ): E1 | yes |
| 14.7 | | Limited quantities (LQ): 5 kg | yes |
| 14.7 | | Transport category (TC): 2 | yes |
| 14.7 | | Hazard identification No: 60 | yes |
| 14.7 | UN number: 1673 | | yes |
| 14.7 | Proper shipping name: PHENYLENEDIAMINES | | yes |
| 14.7 | Class: 6.1 | | yes |
| 14.7 | Packing group: III | | yes |
| 14.7 | UN number: 1673 | | yes |
| 14.7 | Proper shipping name: Phenylenediamines | | yes |
| 14.7 | Class: 6.1 | | yes |
| 14.7 | Packing group: III | | yes |
| 16 | | Abbreviations and acronyms: change in the listing (table) | yes |
| 16 | Key literature references and sources for data: Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU. Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA). | Key literature references and sources for data: Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA). | yes |

Abbreviations and acronyms

| Abbr. | Descriptions of used abbreviations |
|-----------|---|
| ADR | Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road) |
| ATE | Acute Toxicity Estimate |
| CAS | Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances) |
| Ceiling-C | Ceiling value |
| DGR | Dangerous Goods Regulations (see IATA/DGR) |

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| Abbr. | Descriptions of used abbreviations |
|-----------|--|
| DNEL | Derived No-Effect Level |
| EC50 | Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval |
| EC No | The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union) |
| EH40/2005 | EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/) |
| EINECS | European Inventory of Existing Commercial Chemical Substances |
| ELINCS | European List of Notified Chemical Substances |
| EmS | Emergency Schedule |
| GHS | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations |
| IATA | International Air Transport Association |
| IATA/DGR | Dangerous Goods Regulations (DGR) for the air transport (IATA) |
| ICAO | International Civil Aviation Organization |
| ICAO-TI | Technical instructions for the safe transport of dangerous goods by air |
| IMDG | International Maritime Dangerous Goods Code |
| IMDG-Code | International Maritime Dangerous Goods Code |
| LC50 | Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval |
| M-factor | Means a multiplying factor. It is applied to the concentration of a substance classified as hazardous to the aquatic environment acute category 1 or chronic category 1, and is used to derive by the summation method the classification of a mixture in which the substance is present |
| NLP | No-Longer Polymer |
| PBT | Persistent, Bioaccumulative and Toxic |
| PNEC | Predicted No-Effect Concentration |
| ppm | Parts per million |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals |
| RID | Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail) |
| STEL | Short-term exposure limit |
| TWA | Time-weighted average |
| vPvB | Very Persistent and very Bioaccumulative |
| WEL | Workplace exposure limit |

Key literature references and sources for data

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

p-Phenylenediamine

Version number: GHS 2.0
Replaces version of: 2019-07-25 (GHS 1)

Revision: 2024-04-29

List of relevant phrases (code and full text as stated in section 2 and 3)

| Code | Text |
|------|---|
| H301 | Toxic if swallowed. |
| H311 | Toxic in contact with skin. |
| H317 | May cause an allergic skin reaction. |
| H319 | Causes serious eye irritation. |
| H331 | Toxic if inhaled. |
| H400 | Very toxic to aquatic life. |
| H410 | Very toxic to aquatic life with long lasting effects. |

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.