

SAFETY DATA SHEET

Version 6.8
Revision Date 10.07.2020
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SECTION 1: Identification of the hazardous chemical and of the supplier

1.1 Product identifiers

Product name : 2,2-Diphenyl-1-picrylhydrazyl

Product Number : D9132
Brand : Aldrich
CAS-No. : 1898-66-4

1.2 Other means of identification

DPPH
1,1-Diphenyl-2-picrylhydrazyl radical
2,2-Diphenyl-1-(2,4,6-trinitrophenyl)hydrazyl

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

Identified uses : For R&D use only. Not for pharmaceutical, household or other uses.

1.4 Details of the supplier of the safety data sheet

Company : SIGMA-ALDRICH (M) SDN BHD
Level 3, Menara Sunway Annexe,
Jalan Lagoon Timur, Bandar Sunway,
46150 PETALING JAYA, SELANGOR
MALAYSIA

Telephone : +60 (603)03-563-53321
Fax : +60 (603)03-563-54116

1.5 Emergency telephone

Emergency Phone # : 1-800-815-308 (CHEMTREC) * + 62 0800
140 1253 (Customer Call Centre)

Section 2: Hazard identification

2.1 GHS Classification

Classification according to CLASS regulations 2013
Self-reactive substances and mixtures (Type C), H242
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 4), H312
Skin corrosion/irritation (Category 2), H315
Serious eye damage/eye irritation (Category 2), H319
Respiratory sensitization (Category 1), H334
Skin sensitization (Category 1), H317

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

2.2 GHS Label elements, including precautionary statements

Labelling according to CLASS regulations 2013

Pictogram



Signal word

Danger

Hazard statement(s)

H242

Heating may cause a fire.

H302 + H312 + H332

Harmful if swallowed, in contact with skin or if inhaled.

H315

Causes skin irritation.

H317

May cause an allergic skin reaction.

H319

Causes serious eye irritation.

H334

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary statement(s)

Prevention

P210

Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.

P234

Keep only in original container.

P261

Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.

P280

Wear protective gloves/ eye protection/ face protection.

P285

In case of inadequate ventilation wear respiratory protection.

Response

P304 + P340 + P312

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.

P342 + P311

If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician.

P370 + P378

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage

P403 + P235

Store in a well-ventilated place. Keep cool.

2.3 Other hazards - none

SECTION 3: Composition and information of the ingredients of the hazardous chemical

Substance / Mixture : Substance

3.1 Substances

Synonyms

: DPPH

1,1-Diphenyl-2-picrylhydrazyl radical

2,2-Diphenyl-1-(2,4,6-trinitrophenyl)hydrazyl

Formula

: C₁₈H₁₂N₅O₆

Molecular weight

: 394.32 g/mol

CAS-No.

: 1898-66-4

EC-No.

: 217-591-8

Hazardous ingredients

| Component | Classification | Concentration |
|--------------------------------------|--|---------------|
| 2,2-Diphenyl-1-picrylhydrazyl | | |
| | Self-react. C; Acute Tox. 4; 2; Resp. Sens. 1; Skin Sens. 1; H242, H302, | <= 100 % |

| | | |
|--|---------------------------------------|--|
| | H332, H312, H315, H319, H334, H317 | |
|--|---------------------------------------|--|

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

First aider needs to protect himself. Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air. Call in physician.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed

After swallowing: immediately make victim drink water (two glasses at most). 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

Water Foam Carbon dioxide (CO₂) Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides, Nitrogen oxides (NO_x)

Combustible.

Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Work under hood. Do not inhale substance/mixture.

Keep away from open flames, hot surfaces and sources of ignition.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep locked up or in an area accessible only to qualified or authorized persons. Tightly closed and away from sources of ignition and heat. Observe national regulations.

Recommended storage temperature 2 - 8 °C

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 and personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

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.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

protective clothing

Respiratory protection

required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure

Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- | | |
|--|------------------------------------|
| a) Appearance | Form: solid |
| b) Odor | No data available |
| c) Odor Threshold | No data available |
| d) pH | No data available |
| e) Melting point/freezing point | Melting point/range: 135 °C - lit. |
| f) Initial boiling point and boiling range | No data available |
| g) Flash point | No data available |
| h) Evaporation rate | No data available |
| i) Flammability (solid, gas) | No data available |

| | | |
|----|--|-------------------|
| j) | Upper/lower flammability or explosive limits | No data available |
| k) | Vapor pressure | No data available |
| l) | Vapor density | No data available |
| m) | Relative density | No data available |
| n) | Water solubility | insoluble |
| o) | Partition coefficient: n-octanol/water | No data available |
| p) | Autoignition temperature | No data available |
| q) | Decomposition temperature | > 55 °C - Type C |
| r) | Viscosity | No data available |
| s) | Explosive properties | No data available |
| t) | Oxidizing properties | No data available |

9.2 Other safety information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

no information available

10.5 Incompatible materials

Oxidizing agents, Strong bases

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NO_x)

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 available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

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

SECTION 12: Ecological information**12.1 Toxicity**

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

SECTION 13: Disposal information

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local No mixing with other waste. Handle uncleaned containers like the product. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions. According to Quality Environment Regulation (Scheduled Waste) 2005, waste needs to be sent to designated premises for recycle, treatment or disposal. Please contact Kualiti Alam for waste classification and correct disposal method.

SECTION 14: Transportation information

14.1 UN number

ADR/RID: 3224

IMDG: 3224

IATA-DGR: 3224

14.2 UN proper shipping name

ADR/RID: SELF-REACTIVE SOLID TYPE C (1,1-Diphenyl-2-picrylhydrazyl)

IMDG: SELF-REACTIVE SOLID TYPE C (1,1-Diphenyl-2-picrylhydrazyl)

IATA-DGR: Self-reactive solid type C (1,1-Diphenyl-2-picrylhydrazyl)

Special Provisions: "Keep away from heat" label required.

14.3 Transport hazard class(es)

ADR/RID: 4.1

IMDG: 4.1

IATA-DGR: 4.1

14.4 Packaging group

ADR/RID: -

IMDG: -

IATA-DGR: -

14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA-DGR: no

14.6 Special precautions for user

14.7 Incompatible materials

Oxidizing agents, Strong bases

Further information

Special competent authority approval required!

SECTION 15: Regulatory information

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

Notification status

AICS: On the inventory, or in compliance with the inventory

DSL: None of the components of this product are on the Canadian DSL, but all are on the NDSL

ENCS: Not in compliance with the inventory - 2,2-Diphenyl-1-picrylhydrazyl

ISHL: Not in compliance with the inventory - 2,2-Diphenyl-1-picrylhydrazyl

KECI: Not in compliance with the inventory - 2,2-Diphenyl-1-picrylhydrazyl

NZIoC: Not in compliance with the inventory - 2,2-Diphenyl-1-picrylhydrazyl

PICCS: Not in compliance with the inventory - 2,2-Diphenyl-1-picrylhydrazyl

SECTION 16: Other information**Full text of H-Statements referred to under sections 2 and 3.**

| | |
|------|--|
| H242 | Heating may cause a fire. |
| H302 | Harmful if swallowed. |
| H312 | Harmful in contact with skin. |
| H315 | Causes skin irritation. |
| H317 | May cause an allergic skin reaction. |
| H319 | Causes serious eye irritation. |
| H332 | Harmful if inhaled. |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |

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. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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