

## Chemical Safety Data Sheet MSDS / SDS

## Adipic dihydrazide

Revision Date:2024-06-22 Revision Number:1

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

## Product identifier

Product name : Adipic dihydrazide  
CBnumber : CB4129556  
CAS : 1071-93-8  
EINECS Number : 213-999-5  
Synonyms : ADH,Adipic dihydrazide

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

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

## Company Identification

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 400-158-6606

## SECTION 2: Hazards identification

## GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Warning

## Precautionary statements

P264 Wash hands thoroughly after handling.

P264 Wash skin thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continuerinsing.

## Hazard statements

H315 Causes skin irritation

H319 Causes serious eye irritation

H335 May cause respiratory irritation

## SECTION 3: Composition/information on ingredients

### Substance

|              |                          |
|--------------|--------------------------|
| Product name | : Adipic dihydrazide     |
| Synonyms     | : ADH,Adipic dihydrazide |
| CAS          | : 1071-93-8              |
| EC number    | : 213-999-5              |
| MF           | : C6H14N4O2              |
| MW           | : 174.2                  |

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## SECTION 4: First aid measures

### Description of first aid measures

#### If inhaled

After inhalation: fresh air.

#### In case of skin contact

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

#### In case of eye contact

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

#### If swallowed

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

### 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

### Indication of any immediate medical attention and special treatment needed

No data available

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## SECTION 5: Firefighting measures

### Extinguishing media

#### Suitable extinguishing media

Water Foam Carbon dioxide (CO<sub>2</sub>) Dry powder

#### Unsuitable extinguishing media

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

### Special hazards arising from the substance or mixture

Carbon oxides Nitrogen oxides (NO<sub>x</sub>) Combustible.

Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air on intense heating.

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

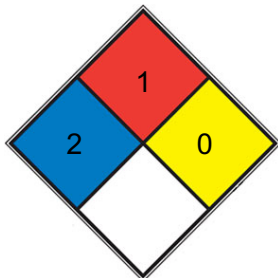
### Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

### Further information

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

### NFPA 704



**HEALTH 2** Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g. [diethyl ether](#), ammonium phosphate, iodine)

**FIRE 1** Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur. Includes some finely divided suspended solids that do not require heating before ignition can occur. Flash point at or above 93.3 °C (200 °F). (e.g. [mineral oil](#), ammonia)

**REACT 0** Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, [N2](#))

**SPEC.**

**HAZ.**

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## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

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

For personal protection see section 8.

### Environmental precautions

Do not let product enter drains.

### 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 dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

### Reference to other sections

For disposal see section 13.

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## SECTION 7: Handling and storage

## Precautions for safe handling

For precautions see section 2.2.

## Conditions for safe storage, including any incompatibilities

### Storage conditions

Tightly closed. Dry.

### Storage stability

Recommended storage temperature

-20 °C

### Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### control parameter

#### Hazard composition and occupational exposure limits

Does not contain substances with occupational exposure limits.

### Exposure controls

#### 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

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm Break through time: 480 min

Material tested:KCL 741 Dermatril? L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact Material: Nitrile rubber

Minimum layer thickness: 0,11 mm Break through time: 480 min

Material tested:KCL 741 Dermatril? L

##### 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.

Recommended Filter type: Filter type P1

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

#### Control of environmental exposure

Do not let product enter drains.

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

|  |   |
|--|---|
| Appearance                                   | white powder  |
| Odour  | No data available   |
| Odour Threshold                              | No data available   |
| pH   | No data available   |
| Melting point/freezing point                 | Melting point/range: 180 - 182 °C - lit.                                      |
| Initial boiling point and boiling range      | 305.18°C (rough estimate)   |
| Flash point                                  | 150 °C - closed cup   |
| Evaporation rate                             | No data available   |
| Flammability (solid, gas)                    | No data available   |
| Upper/lower flammability or explosive limits | No data available   |
| Vapour pressure                              | No data available   |
| Vapour density                               | No data available   |
| Relative density                             | No data available 1,29 at 20 °C - OECD Test Guideline 109                     |
| Water solubility                             | 102 g/l at 20 °C - soluble  |
| Partition coefficient: n-octanol/water       | log Pow: -2,7 at 20 °C - Bioaccumulation is not expected.                     |
| Autoignition temperature                     | No data available   |
| Decomposition temperature                    | No data available   |
| Viscosity                                    | Viscosity, kinematic: No data available Viscosity, dynamic: No data available |
| Explosive properties                         | No data available   |
| Oxidizing properties                         | No data available   |

### Other safety information

No data available

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## SECTION 10: Stability and reactivity

### Reactivity

Forms explosive mixtures with air on intense heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

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.

### **Chemical stability**

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

### **Possibility of hazardous reactions**

Violent reactions possible with:

Strong oxidizing agents Strong bases

### **Conditions to avoid**

Strong heating.

### **Incompatible materials**

Strong oxidizing agents

### **Hazardous decomposition products**

In the event of fire: see section 5

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## **SECTION 11: Toxicological information**

### **Information on toxicological effects**

#### **Acute toxicity**

LD50 Oral - Rat - female - > 2.000 mg/kg (OECD Test Guideline 423)

LC50 Inhalation - Rat - male and female - 4 h - > 5,3 mg/l Remarks: (ECHA)

Dermal

#### **Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation - 4 h (OECD Test Guideline 404)

#### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: No skin irritation (OECD Test Guideline 405)

#### **Respiratory or skin sensitization**

Local lymph node assay (LLNA) - Mouse

Result: negative

(OECD Test Guideline 429)

#### **Germ cell mutagenicity**

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471

Result: negative

Test Type: Chromosome aberration test in vitro Test system: lymphocyte

Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 473

Result: negative

Test Type: gene mutation test

Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476

Result: negative

#### **Carcinogenicity**

No data available

#### **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

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## SECTION 12: Ecological information

### **Toxicity**

#### **Toxicity to fish**

static test LC50 - Cyprinus carpio (Carp) - 96 h

(OECD Test Guideline 203)

#### **Toxicity to daphnia and other aquatic invertebrates**

static test EC50 - Daphnia magna (Water flea) -  $\geq$  106 mg/l - 48 h (Regulation (EC) No. 440/2008, Annex, C.2)

#### **Toxicity to algae**

static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 9,19 mg/l - 72 h

(OECD Test Guideline 201)

### **Persistence and degradability**

Biodegradability Result: 61 % - Readily biodegradable.

(OECD Test Guideline 301F)

### **Bioaccumulative potential**

No data available

### **Mobility in soil**

No data available

### **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.

### **Other adverse effects**

No data available

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## SECTION 13: Disposal considerations

### Waste treatment methods

#### Product

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14: Transport information

### UN number

ADR/RID: 3077 IMDG: 3077 IATA: 3077

### UN proper shipping name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Adipohydrazide) IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Adipohydrazide)

IATA: Environmentally hazardous substance, solid, n.o.s. (Adipohydrazide)

### Transport hazard class(es)

ADR/RID: 9 IMDG: 9 IATA: 9

### Packaging group

ADR/RID: III IMDG: III IATA: III

### Environmental hazards

ADR/RID: yes IMDG Marine pollutant: yes IATA: yes

### Special precautions for user

### Further information

EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids  
or > 5kg for solids. Packages smaller than or equal to 5 kg / L , not dangerous goods of Class 9

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## SECTION 15: Regulatory information

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

#### Regulations on the Safety Management of Hazardous Chemicals

China Catalog of Hazardous chemicals 2015:Not Listed. website: <https://www.mem.gov.cn/>

#### Measures for Environmental Management of New Chemical Substances

Korea Existing Chemicals List (KECL):Listed. website: <http://ncis.nier.go.kr>



Philippines Inventory of Chemicals and Chemical Substances (PICCS):Listed. website: <https://emb.gov.ph/>

Vietnam National Chemical Inventory:Listed. website: <https://chemicaldata.gov.vn/>

New Zealand Inventory of Chemicals (NZIoC):Listed. website: <https://www.epa.govt.nz/>

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: <https://echa.europa.eu/>

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: <https://www.mee.gov.cn/>

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: <https://www.epa.gov/>

EC Inventory:Listed.

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## SECTION 16: Other information

### Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

### References

【1】 CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

【2】 ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

【3】 ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

【4】 eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:

[http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)

【5】 ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

【6】 Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

【7】 HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

【8】 IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

【9】 IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

【10】 Sigma-Aldrich, website: <https://www.sigmaaldrich.com/>

### Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.