ChemicalBook

# Chemical Safety Data Sheet MSDS / SDS

# Acetylacetone

Revision Date:2023-12-16 Revision Number:1

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

### Product identifier

| | |
|---|---|
| Product name | : Acetylacetone |
| CBnumber | : CB2179401 |
| CAS | : 123-54-6 |
| EINECS Number | : 204-634-0 |
| Synonyms | : acetylacetone,acac |

### 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 Danger

**Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P264 Wash hands thoroughly after handling.

P264 Wash skin thouroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

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

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.

P307+P311 IF exposed: call a POISON CENTER or doctor/physician.

P311 Call a POISON CENTER or doctor/physician.

P370+P378 In case of fire: Use … for extinction.

P501 Dispose of contents/container to.....

P405 Store locked up.

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

**Hazard statements**

H402 Harmful to aquatic life

H373 May cause damage to organs through prolonged or repeated exposure

H370 Causes damage to organs

H336 May cause drowsiness or dizziness

H335 May cause respiratory irritation

H331 Toxic if inhaled

H311 Toxic in contact with skin

H302 Harmful if swallowed

H226 Flammable liquid and vapour

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## SECTION 3: Composition/information on ingredients

### Substance

| | |
|---|---|
| Product name | : Acetylacetone |
| Synonyms | : acetylacetone,acac |
| CAS | : 123-54-6 |
| EC number | : 204-634-0 |
| MF | : C5H8O2 |
| MW | : 100.12 |

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## SECTION 4: First aid measures

### Description of first aid measures

**General advice**

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

**If inhaled**

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

**In case of skin contact**

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

**In case of eye contact**

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

**If swallowed**

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

### 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**

Carbon dioxide (CO2) Foam 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 Combustible.

Vapors are heavier than air and may spread along floors. Risk of dust explosion.

Forms explosive mixtures with air at elevated temperatures.

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

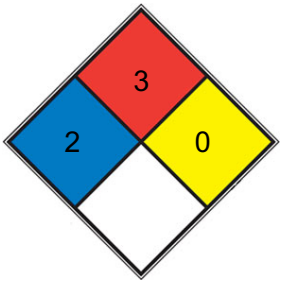
### Advice for firefighters

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

### Further information

Remove container from danger zone and cool with water. 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 | 3 | Liquids and solids (including finely divided suspended solids) that can be ignited under almost all ambient temperature conditions . Liquids having a flash point below 22.8 °C (73 °F) and having a boiling point at or above 37.8 °C (100 °F) or having a flash point between 22.8 and 37.8 °C (73 and 100 °F). (e.g. gasoline, acetone) |
| ■ | REACT | 0 | Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium,N2) |

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## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.

Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

### Environmental precautions

Do not let product enter drains. Risk of explosion.

### 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 with liquid-absorbent material (e.g.

Chemizorb?). Dispose of properly. Clean up affected area.

### Reference to other sections

For disposal see section 13.

## SECTION 7: Handling and storage

### Precautions for safe handling

### Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

### Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

### Hygiene measures

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

For precautions see section 2.2.

### Conditions for safe storage, including any incompatibilities

### Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

### Specific end use(s)

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

## 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**

required

**Body Protection**

Flame retardant antistatic protective clothing.

**Respiratory protection**

Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds

The entrepeneur 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. Risk of explosion.

**Exposure limits**

No exposure limit has been set.

## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

| | |
|---|---|
| Appearance | colorless liquid |
| Odour | ester-like |
| Odour Threshold | No data available |
| pH | 6 (200g/l, H2O, 20℃) |
| Melting point/freezing point | Melting point/range: -23 °C - lit. |
| Initial boiling point and boiling range | 140,4 °C - lit. |
| Flash point | 35 °C - closed cup - Regulation (EC) No. 440/2008, Annex, A.9 |
| Evaporation rate | No data available |
| Flammability (solid, gas) | No data available |
| Upper/lower flammability or explosive limits | Upper explosion limit: 11,4 %(V) Lower explosion limit: 1,7 %(V) |
| Vapour pressure | 7,9 hPa at 20 °C - OECD Test Guideline 104 |
| Vapour density | 3.5 (vs air) |

| | |
|---|---|
| Relative density | 0,97 at 20 °C - Regulation (EC) No. 440/2008, Annex, A.3 |
| Water solubility | ca.153,8 g/l at 20 °C - Regulation (EC) No. 440/2008, Annex, A.6- completely soluble |
| Partition coefficient: n-octanol/water | log Pow: ca.0,68 at 40 °C - OECD Test Guideline 117 - Bioaccumulation is not expected. |
| Autoignition temperature | No data available |
| Decomposition temperature | Distillable in an undecomposed state at normal pressure. |
| Viscosity | Viscosity, kinematic: No data available Viscosity, dynamic: ca.0,76 mPa.s at 20 °Cca.0,63 mPa.s at 40 °C |
| Explosive properties | No data available |
| Oxidizing properties | No data available |

### Other safety information

Surface tension 72 mN/m at 1g/l at 20 °C

- Regulation (EC) No. 440/2008, Annex, A.5

## SECTION 10: Stability and reactivity

### Reactivity

Vapor/air-mixtures are explosive at intense warming.

### Chemical stability

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

### Possibility of hazardous reactions

Violent reactions possible with:

Acids Bases Amines Aldehydes anhydrides

Oxidizing agents Hydrogen fluoride Halogenated compounds Cyanides

Isocyanates alkalines bases

Risk of ignition or formation of inflammable gases or vapours with: hydrides

nitrides Alkali metals

### Conditions to avoid

Heating.

### Incompatible materials

Mild steel, Zinc, Copper, Nickel, various alloys

### Hazardous decomposition products

In the event of fire: see section 5

## SECTION 11: Toxicological information

### Information on toxicological effects

**Acute toxicity**

LD50 Oral - Rat - female - 570 mg/kg

Remarks: (ECHA)

LC50 Inhalation - Rat - male and female - 4 h - 5,0305 mg/l (OECD Test Guideline 403)

Symptoms: mucosal irritations, Cough LD50 Dermal - Rabbit - female - 790 mg/kg Remarks: (ECHA)

**Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation - 4 h Remarks: (ECHA)

**Serious eye damage/eye irritation**

Eyes - Rabbit

Result: slight irritation Remarks: (ECHA)

**Respiratory or skin sensitization**

(OECD Test Guideline 429)

**Germ cell mutagenicity**

Laboratory experiments have shown mutagenic effects.

Test Type: Mutagenicity (mammal cell test): chromosome aberration. Test system: Chinese hamster ovary cells

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

Result: positive

Test Type: sister chromatid exchange assay Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 479

Result: positive

Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary cells

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

Result: negative

Test Type: Ames test

Test system: Salmonella typhimurium

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

Result: negative

Test Type: Micronucleus test Species: Mouse

Cell type: Bone marrow

Application Route: inhalation (vapor) Method: US-EPA

Result: negative

Test Type: comet assay Species: Rat

Cell type: Liver cells Application Route: Oral

Result: negative Remarks: (ECHA)

**Carcinogenicity**

No data available

**Reproductive toxicity**

Ingestion of excessive amounts by pregnant animals resulted in maternal and fetal 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

**Toxicity**

LC50 (4 hrs) in rats: 1000 ppm (Carpenter)

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## SECTION 12: Ecological information

### Toxicity

**Toxicity to fish**

flow-through test LC50 - Pimephales promelas (fathead minnow) - 104 mg/l - 96 h

(OECD Test Guideline 203)

**Toxicity to daphnia and other aquatic invertebrates**

static test EC50 - Daphnia magna (Water flea) - 25,9 mg/l - 48 h (OECD Test Guideline 202)

**Toxicity to algae**

static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 83,22 mg/l - 72 h

(OECD Test Guideline 201)

**Toxicity to bacteria**

static test EC50 - activated sludge - 107,6 mg/l - 3 h

(OECD Test Guideline 209)

### Persistence and degradability

Biodegradability aerobic - Exposure time 28 d

Result: 83 - 100 % - Readily biodegradable. (OECD Test Guideline 301C)

Ratio BOD/ThBOD 5,6 %

Remarks: (Lit.)

### 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

Discharge into the environment must be avoided.

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## SECTION 13: Disposal considerations

### Waste treatment methods

**Incompatibilities**

Vapors may form explosive mixture with air. Incompatible with oxidizers; contact may cause fires or explosions. Keep away from alkaline materials, strong bases, strong acids, oxoacids, epoxides. reducing agents; halogens, aliphatic amines; alkanolamines, organic acids; isocyanates.

### Product

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

**Waste Disposal**

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. All federal, state, and local environmental regulations must be observed.

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## SECTION 14: Transport information

### UN number

ADR/RID: 2310 IMDG: 2310 IATA: 2310

### UN proper shipping name

ADR/RID: PENTANE-2,4-DIONE IMDG: PENTANE-2,4-DIONE

IATA: Pentane-2,4-dione

| | | |
|---|---|---|
| 14.3 | Transport hazard class(es)<br>ADR/RID: 3 (6.1) IMDG: 3 (6.1) | IATA: 3 (6.1) |
| 14.4 | Packaging group<br>ADR/RID: III IMDG: III | IATA: III |
| 14.5 | Environmental hazards<br>ADR/RID: no IMDG Marine pollutant: no | IATA: no |
| 14.6 | Special precautions for user<br>No data available | |

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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:Listed. website: https://www.mem.gov.cn/

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

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

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

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

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

EC Inventory:Listed.

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

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

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

## 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

【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/