

**SAFETY DATA SHEET** according  
to GB/T 16483 and GB/T 17519Version 8.0  
Revision Date 24.08.2022  
Print Date 27.07.2023  
Date of first issue 24.08.2022SDS No. Aldrich - 422053  
Product Number Aldrich - 422053

## DBE dibasic ester

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : DBE dibasic ester

Product Number : 422053

Brand : Aldrich

**1.2 Details of the supplier of the safety data sheet**Company : Sigma-Aldrich (Shanghai) Trading Co.Ltd.  
509 Renqing Road  
Zhangjiang High Tech East Park, Pudong  
SHANGHAI  
201201 SHANGHAI  
CHINA西格玛奥德里奇（上海）贸易有限公司  
上海市浦东新区仁庆路 509 号 10 幢  
邮政编码：201201Merck KGaA  
64271 Darmstadt  
Germany  
Phone: +49 6151 72-0

Telephone : +86 21 6141-5566

Fax : +86 21 6141-5567

**1.3 Emergency telephone**

Emergency Phone # : +86 532 83889090

**1.4 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.**SECTION 2: Hazards identification****Summary of emergency**

Causes serious eye irritation., Harmful to aquatic life. Show this material safety data sheet

to the doctor in attendance. After inhalation: fresh air. In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. After eye contact: rinse out with plenty of water., Call in ophthalmologist., Remove contact lenses. After swallowing: immediately make victim drink water (two glasses at most)., Consult a physician. 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.

## 2.1 GHS Classification

Serious eye damage/eye irritation (Category 2A), H319  
Short-term (acute) aquatic hazard (Category 3), H402

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

## 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word

Warning

Hazard statement(s)

H319

Causes serious eye irritation.

H402

Harmful to aquatic life.

Precautionary statement(s)

Prevention

P264

Wash skin thoroughly after handling.

P273

Avoid release to the environment.

P280

Wear eye protection/ face protection.

Response

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313

If eye irritation persists: Get medical advice/ attention.

Disposal

P501

Dispose of contents/ container to an approved waste disposal plant.

### Reduced Labeling (<= 125 ml)

Pictogram



Signal Word

Warning

Hazard statement(s)

H319

Causes serious eye irritation.

H402

Harmful to aquatic life.

Precautionary statement(s)

none

## 2.3 Physical and chemical hazards

Referring to current information, no physical or chemical hazard.

## 2.4 Health hazards

H319

Causes serious eye irritation.

## 2.5 Environmental hazards

H402

Harmful to aquatic life.

## 2.6 Other hazards - none

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### SECTION 3: Composition/information on ingredients

Substance / Mixture : Mixture

#### 3.2 Mixtures

Synonyms : Dibasic ester mixture  
DBE

Molecular weight : 146.1 g/mol

#### Hazardous ingredients

Component	Classification	Concentration
<b>dimethyl glutarate</b>		
CAS-No. 1119-40-0 EC-No. 214-277-2	Short-term (acute) aquatic hazard Category 3; H402	$\geq 70 - < 90$ %
<b>dimethyl succinate</b>		
CAS-No. 106-65-0 EC-No. 203-419-9	Serious eye damage/eye irritation Category 2A; Short-term (acute) aquatic hazard Category 3; H319, H402	$\geq 25 - < 30$ %
<b>dimethyl adipate</b>		
CAS-No. 627-93-0 EC-No. 211-020-6	Short-term (acute) aquatic hazard Category 3; H402	$\geq 25 - < 30$ %

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

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### SECTION 4: First aid measures

#### 4.1 Description of first-aid measures

##### General advice

Show this material safety data sheet to the doctor in attendance.

##### 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. 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

#### **4.4 Notes to physician**

No data available

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### **SECTION 5: Firefighting measures**

#### **5.1 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.

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

Carbon oxides

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.

#### **5.3 Advice for firefighters**

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

Prevent fire extinguishing water from contaminating surface water or the ground water system.

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### **SECTION 6: Accidental release measures**

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

Advice for non-emergency personnel: Do not breathe vapors, aerosols. 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 with liquid-absorbent material (e.g. Chemisorb® ).

Dispose of properly. Clean up affected area.

#### **6.4 Reference to other sections**

For disposal see section 13.

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### **SECTION 7: Handling and storage**

#### **7.1 Precautions for safe handling**

For precautions see section 2.2.

## 7.2 Conditions for safe storage, including any incompatibilities

### Storage conditions

Tightly closed.

### Storage class

Storage class (TRGS 510): 10: Combustible liquids

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## SECTION 8: Exposure controls/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

Change contaminated clothing. Wash hands 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

required

##### Body Protection

protective clothing

##### Respiratory protection

required when vapours/aerosols 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.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- |   |  |
|---|--|
| a) Physical state                               | liquid   |
| b) Color  | No data available  |
| c) Odor   | No data available  |
| d) Melting point/freezing point                 | No data available  |
| e) Initial boiling point and boiling range      | 196 - 225 °C at 1,013 hPa  |
| f) Flammability (solid, gas)                    | No data available  |
| g) Upper/lower flammability or explosive limits | Upper explosion limit: 8 %(V)<br>Lower explosion limit: 0.9 %(V) |

- |   |  |
|---|--|
| h) Flash point                            | 100 °C - closed cup  |
| i) Autoignition temperature               | 370 °C   |
| j) Decomposition temperature              | No data available  |
| k) pH                                     | No data available  |
| l) Viscosity                              | Viscosity, kinematic: No data available<br>Viscosity, dynamic: No data available |
| m) Water solubility                       | No data available  |
| n) Partition coefficient: n-octanol/water | No data available  |
| o) Vapor pressure                         | 0.3 hPa at 20 °C   |
| p) Density                                | 1.092 g/cm <sup>3</sup>  |
| Relative density                          | No data available  |
| q) Relative vapor density                 | No data available  |
| r) Particle characteristics               | No data available  |
|   |  |
| s) Explosive properties                   | Not classified as explosive.   |
| t) Oxidizing properties                   | none   |

## 9.2 Other safety information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Chemical stability

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

### 10.2 Possibility of hazardous reactions

No data available

### 10.3 Conditions to avoid

Strong heating.

### 10.4 Incompatible materials

Bases, Oxidizing agents, Reducing agents, acids

### 10.5 Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Mixture

#### Acute toxicity

Oral: No data available

Symptoms: Possible symptoms:, mucosal irritations

Dermal: No data available

**Skin corrosion/irritation**

No data available

**Serious eye damage/eye irritation**

Mixture causes serious eye irritation.

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

No data available

**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

**11.2 Additional Information**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.  
Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

**Components**

**dimethyl glutarate**

**Acute toxicity**

LD50 Oral - Rat - female - > 5,000 mg/kg

(OECD Test Guideline 423)

LC50 Inhalation - Rat - male and female - 4 h - > 11 mg/l - aerosol

(OECD Test Guideline 403)

LD50 Dermal - Rat - male and female - > 2,000 mg/kg

(OECD Test Guideline 402)

**Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation

(OECD Test Guideline 404)

**Serious eye damage/eye irritation**

Eyes - Rabbit

Result: No eye 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  
Result: negative  
Test Type: Chromosome aberration test in vitro  
Test system: lymphocyte  
Result: negative  
Test Type: gene mutation test  
Test system: Chinese hamster ovary cells  
Result: negative  
Method: Mutagenicity (micronucleus test)  
Species: Rat - male and female  
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

**dimethyl succinate**

**Acute toxicity**

LD50 Oral - Rat - > 5,000 mg/kg  
Remarks: (IUCLID)  
Symptoms: Possible damages:, mucosal irritations  
LD50 Dermal - Rabbit - > 5,000 mg/kg  
Remarks: (IUCLID)

**Skin corrosion/irritation**

Skin - Rabbit  
Result: No skin irritation  
(OECD Test Guideline 404)

**Serious eye damage/eye irritation**

Eyes - Rabbit  
Result: Eye irritation  
(OECD Test Guideline 405)  
Lacrimal irritation due to vapours.

**Respiratory or skin sensitization**

Patch test: - Human  
Result: negative  
Remarks: (External MSDS)

**Germ cell mutagenicity**

Test Type: Ames test

Result: negative

Remarks: (IUCLID)

Result: negative

Remarks: (National Toxicology Program)

**Carcinogenicity**

No data available

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

Acute inhalation toxicity - Possible damages: , mucosal irritations

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**dimethyl adipate****Acute toxicity**

LD50 Oral - Rat - male and female - > 5,000 mg/kg

(OECD Test Guideline 423)

Inhalation: No data available

LD50 Dermal - Rabbit - male and female - > 1,000 mg/kg

(OECD Test Guideline 402)

**Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation - 4 h

**Serious eye damage/eye irritation**

Eyes - Rabbit

Result: No eye irritation

(OECD Test Guideline 405)

**Respiratory or skin sensitization**

Local lymph node assay (LLNA) - Mouse

Result: negative

(OECD Test Guideline 429)

**Germ cell mutagenicity**

Method: OECD Test Guideline 474

Species: Rat

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****12.1 Toxicity****Mixture**

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 Endocrine disrupting properties**

No data available

**12.7 Other adverse effects**

No data available

**Components****dimethyl glutarate**

Toxicity to fish

static test LC50 - Lepomis macrochirus (Bluegill) - 30.838 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates

static test EC50 - Daphnia magna (Water flea) - 112 - 150 mg/l - 48 h  
Remarks: (ECHA)**dimethyl succinate**

Toxicity to fish

LC50 - Danio rerio (zebra fish) - 50 - 100 mg/l - 96 h  
(OECD Test Guideline 203)

Toxicity to bacteria

**dimethyl adipate**

Toxicity to fish

LC50 - Pimephales promelas (fathead minnow) - 18 - 24 mg/l - 96 h  
Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates

static test EC50 - Daphnia magna (Water flea) - 72 mg/l - 48 h  
(OECD Test Guideline 202)

Toxicity to algae                      static test EC50 - Raphidocelis subcapitata (freshwater green alga) - > 100 mg/l - 72 h (OECD Test Guideline 201)

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Offer surplus and non-recyclable solutions to a licensed disposal company.

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## SECTION 14: Transport information

### 14.1 UN number

ADR/RID: -                                      IMDG: -                                      IATA-DGR: -

### 14.2 UN proper shipping name

ADR/RID:            Not dangerous goods

IMDG:                Not dangerous goods

IATA-DGR:        Not dangerous goods

### 14.3 Transport hazard class(es)

ADR/RID: -                                      IMDG: -                                      IATA-DGR: -

### 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

Bases, Oxidizing agents, Reducing agents, acids

#### Further information

Not classified as dangerous in the meaning of transport regulations.

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## SECTION 15: Regulatory information

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

#### National regulatory information

#### Other regulations

Please pay attention on the waste treatment should also comply with local regulations requirement.

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## SECTION 16: Other information

### Full text of H-Statements referred to under sections 2 and 3.

H319                      Causes serious eye irritation.

H402                      Harmful to aquatic life.

**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](http://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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