

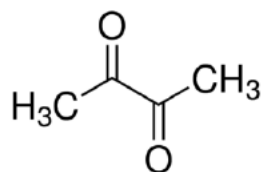
CAS-No.: 431-03-8 MSDS

## MATERIAL SAFETY DATA SHEET (MSDS)

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

## 1.1. Product identifier

Product form : Substance  
 :  
 EC-No. : 207-069-8  
 CAS-No. : 431-03-8  
 Product code : 03198  
 Chemical structure :



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

## 1.2.1. Relevant identified uses

Industrial/Professional use spec : Industrial  
 For professional use only

## 1.2.2. Uses advised against

No additional information available

## 1.3. Details of the supplier of the safety data sheet

Labogens Fine Chem Industries  
 1st Floor , Above Bank of India, Guru Vihar , Rahon Road,  
 Ludhiana Pb. (141007)  
 +91 9316777775, +91 7707855700  
[sales@labogens.com](mailto:sales@labogens.com) - [www.Labogens.com](http://www.Labogens.com)

## 1.4. Emergency telephone number

Emergency number : +91 7707855700 (9:00am - 6:00 pm)

## SECTION 2: Hazards identification

## 2.1. Classification of the substance or mixture

## Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flammable liquids, H225  
 Category 2  
 Acute toxicity (oral), H302  
 Category 4  
 Acute toxicity (inhal.), H331  
 Category 3  
 Skin corrosion/irritation, H315  
 Category 2  
 Serious eye damage/eye  
 irritation, Category 1 H318  
 Specific target organ H335

# DIACETYL FOR SYNTHESIS

## Safety Data Sheet

toxicity — Single exposure, Category 3, Respiratory tract irritation

Full text of H statements : see section 16

### Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

F; R11  
Xn; R20/22  
Xi; R41  
Xi; R37/38

Full text of R-phrases: see section 16

### Adverse physicochemical, human health and environmental effects

No additional information available

## 2.2. Label elements

### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS02

GHS05

GHS06

Signal word (CLP) : Danger

Hazard statements (CLP) : H225 - Highly flammable liquid and vapour.  
H302 - Harmful if swallowed.  
H315 - Causes skin irritation.  
H318 - Causes serious eye damage.  
H331 - Toxic if inhaled.  
H335 - May cause respiratory irritation.

Precautionary statements (CLP) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P261 - Avoid breathing vapours, spray, dust, fume, gas.  
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. Continue rinsing.  
P311 - Call a POISON CENTER/doctor

## 2.3. Other hazards

No additional information available

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Name : DIACETYL FOR SYNTHESIS  
CAS-No. : 431-03-8  
EC-No. : 207-069-8

# DIACETYL FOR SYNTHESIS

## Safety Data Sheet

Full text of R- and H-statements: see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

|                                       |   |
|---------------------------------------|---|
| First-aid measures after inhalation   | : Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.  |
| First-aid measures after skin contact | : Wash with plenty of water/.... Wash contaminated clothing before reuse. Get medical advice/attention.   |
| First-aid measures after eye contact  | : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. |
| First-aid measures after ingestion    | : Rinse mouth. Call a POISON CENTER/doctor if you feel unwell.  |

### 4.2. Most important symptoms and effects, both acute and delayed

|                                     |                                     |
|-------------------------------------|-------------------------------------|
| Symptoms/effects after inhalation   | : May cause respiratory irritation. |
| Symptoms/effects after skin contact | : Causes skin irritation.           |
| Symptoms/effects after eye contact  | : Causes serious eye damage.        |
| Symptoms/effects after ingestion    | : Harmful if swallowed.             |

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

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

|                                |  |
|--------------------------------|--|
| Suitable extinguishing media   | : Carbon dioxide. Dry powder. Foam. Water spray. |
| Unsuitable extinguishing media | : Do not use a heavy water stream.               |

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

|                  |  |
|------------------|--|
| Fire hazard      | : Highly flammable liquid and vapour.              |
| Explosion hazard | : May form flammable/explosive vapour-air mixture. |

### 5.3. Advice for firefighters

|                                |   |
|--------------------------------|---|
| Protection during firefighting | : Do not enter fire area without proper protective equipment, including respiratory protection. |
|--------------------------------|---|

## SECTION 6: Accidental release measures

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

|                  |   |
|------------------|---|
| General measures | : Remove ignition sources. Use special care to avoid static electric charges. No open flames. No smoking. |
|------------------|---|

#### 6.1.1. For non-emergency personnel

|                      |                                   |
|----------------------|-----------------------------------|
| Emergency procedures | : Evacuate unnecessary personnel. |
|----------------------|-----------------------------------|

#### 6.1.2. For emergency responders

|                      |  |
|----------------------|--|
| Protective equipment | : Use personal protective equipment as required. |
| Emergency procedures | : Ventilate area.                                |

### 6.2. Environmental precautions

Avoid release to the environment.

# DIACETYL FOR SYNTHESIS

## Safety Data Sheet

### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Collect spillage. On land, sweep or shovel into suitable containers.

### 6.4. Reference to other sections

No additional information available

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapours are flammable.  
Precautions for safe handling : Take precautionary measures against static discharge. Use only non-sparking tools. Keep away from sources of ignition - No smoking. Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes. Do not breathe vapours.  
Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

### 7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment.  
Storage conditions : Keep in fireproof place. Keep container tightly closed.  
Incompatible materials : Heat sources.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

No additional information available

### 8.2. Exposure controls

Hand protection : Protective gloves  
Eye protection : Chemical goggles or safety glasses  
Skin and body protection : Wear suitable protective clothing  
Respiratory protection : [In case of inadequate ventilation] wear respiratory protection.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state : Liquid  
Molecular mass : 86.09 g/mol  
Colour : Deep yellow.  
Odour : stench.  
Odour threshold : No data available  
pH : 3.2  
Relative evaporation rate (butylacetate=1) : No data available

# DIACETYL FOR SYNTHESIS

## Safety Data Sheet

|                                  |  |
|----------------------------------|--|
| Melting point                    | : -2 °C  |
| Freezing point                   | : No data available                                |
| Boiling point                    | : 88 - 89 °C                                       |
| Flash point                      | : 7 °C   |
| Auto-ignition temperature        | : 345 °C   |
| Decomposition temperature        | : No data available                                |
| Flammability (solid, gas)        | : Flammable<br>Highly flammable liquid and vapour. |
| Vapour pressure                  | : 52.2 mm Hg at 20 °C                              |
| Relative vapour density at 20 °C | : 3  |
| Relative density                 | : No data available                                |
| Density                          | : 0.985 g/cm <sup>3</sup>                          |
| Solubility                       | : Water: 0.2 g/ml H <sub>2</sub> O Soluble         |
| Log Pow                          | : 0.467  |
| Viscosity, kinematic             | : No data available                                |
| Viscosity, dynamic               | : No data available                                |
| Explosive properties             | : No data available                                |
| Oxidising properties             | : No data available                                |
| Explosive limits                 | : 0.024 - 0.13 vol %                               |

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No additional information available

### 10.4. Conditions to avoid

Open flame. Heat. Sparks.

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

May release flammable gases.

# DIACETYL FOR SYNTHESIS

## Safety Data Sheet

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed. Inhalation: Toxic if inhaled.

Skin corrosion/irritation : Causes skin irritation.  
pH: 3.2

Serious eye damage/irritation : Causes serious eye damage.  
pH: 3.2

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

STOT-single exposure : May cause respiratory irritation.

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

Potential adverse human health effects and symptoms : Harmful if swallowed.

### SECTION 12: Ecological information

#### 12.1. Toxicity

No additional information available

#### 12.2. Persistence and degradability

No additional information available

#### 12.3. Bioaccumulative potential

##### DIACETYL FOR SYNTHESIS (431-03-8)

|         |       |
|---------|-------|
| Log Pow | 0.467 |
|---------|-------|

#### 12.4. Mobility in soil

No additional information available

#### 12.5. Results of PBT and vPvB assessment

No additional information available

# DIACETYL FOR SYNTHESIS

## Safety Data Sheet

### 12.6. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Product/Packaging disposal recommendations : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

Additional information : Handle empty containers with care because residual vapours are flammable.

## SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

### 14.1. UN number

UN-No. (ADR) : 2346  
UN-No. (IMDG) : 2346  
UN-No. (IATA) : 2346  
UN-No. (ADN) : 2346  
UN-No. (RID) : 2346

### 14.2. UN proper shipping name

Proper Shipping Name (ADR) : BUTANEDIONE  
Proper Shipping Name (IMDG) : BUTANEDIONE  
Proper Shipping Name (IATA) : Butanedione  
Proper Shipping Name (ADN) : BUTANEDIONE  
Proper Shipping Name (RID) : BUTANEDIONE  
Transport document description (ADR) : UN 2346 BUTANEDIONE, 3, II, (D/E)  
Transport document description (IMDG) : UN 2346 BUTANEDIONE, 3, II (6°C c.c.)  
Transport document description (IATA) : UN 2346 Butanedione, 3, II  
Transport document description (ADN) : UN 2346 BUTANEDIONE, 3, II  
Transport document description (RID) : UN 2346 BUTANEDIONE, 3, II

### 14.3. Transport hazard class(es)

#### ADR

Transport hazard class(es) (ADR) : 3  
Danger labels (ADR) : 3



#### IMDG

Transport hazard class(es) (IMDG) : 3  
Danger labels (IMDG) : 3



#### IATA

Transport hazard class(es) (IATA) : 3

# DIACETYL FOR SYNTHESIS

## Safety Data Sheet

Hazard labels (IATA) : 3



### ADN

Transport hazard class(es) (ADN) : 3

Danger labels (ADN) : 3



### RID

Transport hazard class(es) (RID) : 3

Danger labels (RID) : 3



### 14.4. Packing group

Packing group (ADR) : II

Packing group (IMDG) : II

Packing group (IATA) : II

Packing group (ADN) : II

Packing group (RID) : II

### 14.5. Environmental hazards

Dangerous for the environment : No

Marine pollutant : No

Other information : No supplementary information available

### 14.6. Special precautions for user

#### - Overland transport

Classification code (ADR) : F1

Limited quantities (ADR) : 1I

Excepted quantities (ADR) : E2

Packing instructions (ADR) : P001, IBC02, R001

Mixed packing provisions (ADR) : MP19

Portable tank and bulk container instructions (ADR) : T4

Portable tank and bulk container special provisions (ADR) : TP1

Tank code (ADR) : LGBF

Vehicle for tank carriage : FL

Transport category (ADR) : 2

Special provisions for carriage - Operation (ADR) : S2, S20



# DIACETYL FOR SYNTHESIS

## Safety Data Sheet

Hazard identification number (Kemler No.) : 33

Orange plates :



Tunnel restriction code (ADR) : D/E

EAC code : •2YE

### - Transport by sea

Packing instructions (IMDG) : P001

IBC packing instructions (IMDG) : IBC02

Tank instructions (IMDG) : T4

Tank special provisions (IMDG) : TP1

EmS-No. (Fire) : F-E

EmS-No. (Spillage) : S-D

Stowage category (IMDG) : B

Flash point (IMDG) : 6°C c.c.

Properties and observations (IMDG) : Greenish-yellow liquid with a strong odour. Flashpoint: 6°C c.c. Miscible with water.

MFAG-No : 127

### - Air transport

PCA Excepted quantities (IATA) : E2

PCA Limited quantities (IATA) : Y341

PCA limited quantity max net quantity (IATA) : 1L

PCA packing instructions (IATA) : 353

PCA max net quantity (IATA) : 5L

CAO packing instructions (IATA) : 364

CAO max net quantity (IATA) : 60L

ERG code (IATA) : 3L

### - Inland waterway transport

Classification code (ADN) : F1

Limited quantities (ADN) : 1 L

Excepted quantities (ADN) : E2

Equipment required (ADN) : PP, EX, A

Ventilation (ADN) : VE01

Number of blue cones/lights (ADN) : 1

### - Rail transport

Classification code (RID) : F1

Limited quantities (RID) : 1L

Excepted quantities (RID) : E2

Packing instructions (RID) : P001, IBC02, R001

Mixed packing provisions (RID) : MP19

Portable tank and bulk container instructions (RID) : T4

Portable tank and bulk container special provisions (RID) : TP1

Tank codes for RID tanks (RID) : LGBF

Transport category (RID) : 2

Colis express (express parcels) (RID) : CE7

Hazard identification number (RID) : 33

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

# DIACETYL FOR SYNTHESIS

## Safety Data Sheet

### SECTION 15: Regulatory information

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

##### 15.1.1. EU-Regulations

No REACH Annex XVII restrictions

DIACETYL FOR SYNTHESIS is not on the REACH Candidate List

DIACETYL FOR SYNTHESIS is not on the REACH Annex XIV List

##### 15.1.2. National regulations

###### Germany

Reference to AwSV : Water hazard class (WGK) 2, significant hazard to water (Classification according to AwSV; ID No. 5649)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

###### Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

###### Denmark

Class for fire hazard : Class I-1

Store unit : 1 liter

Classification remarks : F <Flam. Liq. 2>; Emergency management guidelines for the storage of flammable liquids must be followed

Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product

#### 15.2. Chemical safety assessment

No additional information available

### SECTION 16: Other information

Full text of R-, H- and EUH-statements:

|                           |                                     |
|---------------------------|-------------------------------------|
| Acute Tox. 3 (Inhalation) | Acute toxicity (inhal.), Category 3 |
|---------------------------|-------------------------------------|

# DIACETYL FOR SYNTHESIS

## Safety Data Sheet

|                     |  |
|---------------------|--|
| Acute Tox. 4 (Oral) | Acute toxicity (oral), Category 4  |
| Eye Dam. 1          | Serious eye damage/eye irritation, Category 1  |
| Flam. Liq. 2        | Flammable liquids, Category 2  |
| Skin Irrit. 2       | Skin corrosion/irritation, Category 2  |
| STOT SE 3           | Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation |
| H225                | Highly flammable liquid and vapour.  |
| H302                | Harmful if swallowed.  |
| H315                | Causes skin irritation.  |
| H318                | Causes serious eye damage.   |
| H331                | Toxic if inhaled.  |
| H335                | May cause respiratory irritation.  |
| R11                 | Highly flammable   |
| R20/22              | Harmful by inhalation and if swallowed   |
| R37/38              | Irritating to respiratory system and skin  |
| R41                 | Risk of serious damage to eyes   |
| F                   | Highly flammable   |
| Xi                  | Irritant   |
| Xn                  | Harmful  |

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product*