

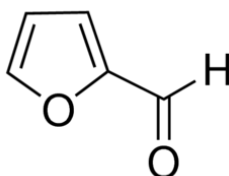
CAS-No.: 98-01-1 MSDS

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 Index-No. : 605-010-00-4
EC-No. : 202-627-7
CAS-No. : 98-01-1
Product code : 03892
Formula : C₅H₄O₂
Chemical structure :



Synonyms : 2-Furaldehyde

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

LOBA CHEMIE PVT.LTD.
107 Wode House Road, Jehangir Villa, Colaba
400005 Mumbai - INDIA
T +91 22 6663 6663 - F +91 22 6663 6699
info@lobachemie.com - www.lobachemie.com

1.4. Emergency telephone number

Emergency number : + 91 22 6663 6663 (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]

Acute toxicity (inhal.), Category 3 H331
Acute toxicity (oral), Category 3 H301
Acute toxicity (dermal), Category 4 H312

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Carcinogenicity, Category 2 H351
Serious eye damage/eye irritation, Category 2 H319
Skin corrosion/irritation, Category 2 H315
Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation H335

Full text of H statements : see section 16

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

Carc.Cat.3; R40
T; R23/25
Xn; R21
Xi; R36/37/38

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) :



GHS06

GHS08

Signal word (CLP) : -

Hazard statements (CLP) : H301+H331 - Toxic if swallowed or if inhaled
H312 - Harmful in contact with skin.
H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H335 - May cause respiratory irritation.
H351 - Suspected of causing cancer.

Precautionary statements (CLP) : P261 - Avoid breathing dust, fume, gas, vapours, spray, mist.
P280 - Wear protective gloves, protective clothing, eye protection, face protection.
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER/doctor
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

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SECTION 3: Composition/information on ingredients

3.1. Substances

| | |
|--------------|--------------------------|
| Name | : FURFURAL FOR SYNTHESIS |
| CAS-No. | : 98-01-1 |
| EC-No. | : 202-627-7 |
| EC Index-No. | : 605-010-00-4 |

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 general | : Suspected of causing cancer. |
| 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 | : Immediately call a POISON CENTER/doctor. Specific measures (see supplemental first aid instruction on this label). Wash with plenty of water/... Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention. Specific treatment (see supplemental first aid instruction on this label). |
| First-aid measures after eye contact | : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. |
| First-aid measures after ingestion | : Rinse mouth. Obtain emergency medical attention. Immediately call a POISON CENTER/doctor. Specific treatment (see supplemental first aid instruction on this label). |

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

| | |
|-------------------------------------|---|
| Symptoms/effects after inhalation | : May cause respiratory irritation. |
| Symptoms/effects after skin contact | : Harmful in contact with skin. Causes skin irritation. |
| Symptoms/effects after eye contact | : Causes serious eye irritation. |
| Symptoms/effects after ingestion | : Toxic 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 | : Water spray. Foam. Dry powder. Carbon dioxide. |
| Unsuitable extinguishing media | : Do not use a heavy water stream. |

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

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

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

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.

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

Precautions for safe handling : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. 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

Storage conditions : Keep container tightly closed.

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

Colour : Colorless to brown.

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| | |
|--|--------------------------|
| Odour | : almond odor. |
| Odour threshold | : No data available |
| pH | : No data available |
| Relative evaporation rate (butylacetate=1) | : No data available |
| Melting point | : -36 °C |
| Freezing point | : No data available |
| Boiling point | : 162 °C |
| Flash point | : 60 °C |
| Auto-ignition temperature | : 316 °C |
| Decomposition temperature | : No data available |
| Flammability (solid, gas) | : No data available |
| Vapour pressure | : 2.3 hPa at 20 °C |
| Relative vapour density at 20 °C | : 3.32 |
| Relative density | : No data available |
| Density | : 1.16 g/cm ³ |
| Solubility | : Water: Soluble |
| Log Pow | : 0.41 |
| Viscosity, kinematic | : No data available |
| Viscosity, dynamic | : No data available |
| Explosive properties | : No data available |
| Oxidising properties | : No data available |
| Explosive limits | : 2.1 - 19.3 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

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

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10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Inhalation: Toxic if inhaled. Oral: Toxic if swallowed. Dermal: Harmful in contact with skin.

Skin corrosion/irritation : Causes skin irritation.

Serious eye damage/irritation : Causes serious eye irritation.

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Suspected of causing cancer.

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 in contact with skin. Toxic 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

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| | |
|---------|------|
| Log Pow | 0.41 |
|---------|------|

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

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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.
Ecology - waste materials : Hazardous waste due to toxicity.

SECTION 14: Transport information

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

14.1. UN number

UN-No. (ADR) : 1199
UN-No. (IMDG) : 1199
UN-No. (IATA) : 1199
UN-No. (ADN) : 1199
UN-No. (RID) : 1199

14.2. UN proper shipping name

Proper Shipping Name (ADR) : FURALDEHYDES
Proper Shipping Name (IMDG) : FURALDEHYDES
Proper Shipping Name (IATA) : Furaldehydes
Proper Shipping Name (ADN) : FURALDEHYDES
Proper Shipping Name (RID) : FURALDEHYDES
Transport document description (ADR) : UN 1199 FURALDEHYDES, 6.1 (3), II, (D/E)
Transport document description (IMDG) : UN 1199 FURALDEHYDES, 6.1 (3), II
Transport document description (IATA) : UN 1199 Furaldehydes, 6.1, II
Transport document description (ADN) : UN 1199 FURALDEHYDES, 6.1 (3), II
Transport document description (RID) : UN 1199 FURALDEHYDES, 6.1 (3), II

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : 6.1 (3)
Danger labels (ADR) : 6.1, 3



IMDG

Transport hazard class(es) (IMDG) : 6.1 (3)
Danger labels (IMDG) : 6.1, 3



IATA

Transport hazard class(es) (IATA) : 6.1 (3)

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Hazard labels (IATA) : 6.1, 3



ADN

Transport hazard class(es) (ADN) : 6.1 (3)

Danger labels (ADN) : 6.1, 3



RID

Transport hazard class(es) (RID) : 6.1 (3)

Danger labels (RID) : 6.1, 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) : TF1

Limited quantities (ADR) : 100ml

Excepted quantities (ADR) : E4

Packing instructions (ADR) : P001, IBC02

Mixed packing provisions (ADR) : MP15

Portable tank and bulk container instructions (ADR) : T7

Portable tank and bulk container special provisions (ADR) : TP2

Tank code (ADR) : L4BH

Tank special provisions (ADR) : TU15, TE19

Vehicle for tank carriage : FL

Transport category (ADR) : 2

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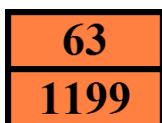
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Special provisions for carriage - Loading, unloading and handling (ADR) : CV13, CV28

Special provisions for carriage - Operation (ADR) : S2, S9, S19

Hazard identification number (Kemler No.) : 63

Orange plates :



Tunnel restriction code (ADR) : D/E

EAC code : •3Y

- Transport by sea

Limited quantities (IMDG) : 100 ml

Excepted quantities (IMDG) : E4

Packing instructions (IMDG) : P001

IBC packing instructions (IMDG) : IBC02

Tank instructions (IMDG) : T7

Tank special provisions (IMDG) : TP2

EmS-No. (Fire) : F-E

EmS-No. (Spillage) : S-D

Stowage category (IMDG) : A

Properties and observations (IMDG) : Colourless or reddish-brown, mobile liquids with a pungent odour. Miscible with water. Explosive limits for 2-FURALDEHYDE: 2.1% to 19.3%. Flashpoints: 2-FURALDEHYDE 60°C c.c., 3-FURALDEHYDE 48°C c.c. Toxic if swallowed, by skin contact or by inhalation.

MFAG-No : 132P

- Air transport

PCA Excepted quantities (IATA) : E4

PCA Limited quantities (IATA) : Y641

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

PCA packing instructions (IATA) : 654

PCA max net quantity (IATA) : 5L

CAO packing instructions (IATA) : 662

CAO max net quantity (IATA) : 60L

ERG code (IATA) : 6F

- Inland waterway transport

Classification code (ADN) : TF1

Special provisions (ADN) : 802

Limited quantities (ADN) : 100 ml

Excepted quantities (ADN) : E4

Carriage permitted (ADN) : T

Equipment required (ADN) : PP, EP, EX, TOX, A

Ventilation (ADN) : VE01, VE02

Number of blue cones/lights (ADN) : 2

- Rail transport

Classification code (RID) : TF1

Excepted quantities (RID) : E4

Packing instructions (RID) : P001, IBC02

Mixed packing provisions (RID) : MP15

Portable tank and bulk container instructions (RID) : T7

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| | |
|---|--------------------|
| Portable tank and bulk container special provisions (RID) | : TP2 |
| Tank codes for RID tanks (RID) | : L4BH |
| Special provisions for RID tanks (RID) | : TU15 |
| Transport category (RID) | : 2 |
| Special provisions for carriage - Loading, unloading and handling (RID) | : CW13, CW28, CW31 |
| Colis express (express parcels) (RID) | : CE5 |
| Hazard identification number (RID) | : 63 |

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

Not applicable

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

FURFURAL FOR SYNTHESIS is not on the REACH Candidate List

FURFURAL 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. 113)

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 III-1

Store unit : 50 liter

Classification remarks : Flammable according to the Danish Ministry of Justice; Emergency management guidelines for the storage of flammable liquids must be followed

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Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product
The requirements from the Danish Working Environment Authorities regarding work with carcinogens must be followed during use and disposal

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 |
| Acute Tox. 3 (Oral) | Acute toxicity (oral), Category 3 |
| Acute Tox. 4 (Dermal) | Acute toxicity (dermal), Category 4 |
| Carc. 2 | Carcinogenicity, Category 2 |
| Eye Irrit. 2 | Serious eye damage/eye irritation, Category 2 |
| Skin Irrit. 2 | Skin corrosion/irritation, Category 2 |
| STOT SE 3 | Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation |
| H301 | Toxic if swallowed. |
| H312 | Harmful in contact with skin. |
| H315 | Causes skin irritation. |
| H319 | Causes serious eye irritation. |
| H331 | Toxic if inhaled. |
| H335 | May cause respiratory irritation. |
| H351 | Suspected of causing cancer. |
| R21 | Harmful in contact with skin |
| R23/25 | Toxic by inhalation and if swallowed |
| R36/37/38 | Irritating to eyes, respiratory system and skin |
| R40 | Limited evidence of a carcinogenic effect |
| T | Toxic |
| 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