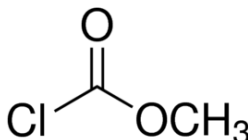


MATERIAL SAFETY DATA SHEET (MSDS)

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

1.1. Product identifier

Product form : Substance
:
EC index no : 607-019-00-9
EC no : 201-187-3
CAS No : 79-22-1
Product code : 04638
Chemical structure :



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

1.2.1. Relevant identified uses

Use of the substance/mixture : Laboratory chemicals, Manufacture of substances

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]

Flammable liquids,	H225
Category 2	
Acute toxicity (oral),	H302
Category 4	
Acute toxicity (dermal),	H312
Category 4	
Acute toxicity (inhal.),	H330
Category 2	
Skin corrosion/irritation,	H314
Category 1B	

METHYL CHLOROFORMATE FOR SYNTHESIS

Safety Data Sheet

Full text of classification categories and H statements : see section 16

Classification according to Directive 67/548/EEC or 1999/45/EC

F; R11
T+; R26
Xn; R21/22
C; R34

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+H312 - Harmful if swallowed or in contact with skin
H314 - Causes severe skin burns and eye damage
H330 - Fatal if inhaled

Precautionary statements (CLP)

: P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P284 - [In case of inadequate ventilation] wear respiratory 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
P310 - Immediately call a POISON CENTER or doctor/physician

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

Name : METHYL CHLOROFORMATE FOR SYNTHESIS
CAS No : 79-22-1
EC no : 201-187-3
EC index no : 607-019-00-9

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

METHYL CHLOROFORMATE FOR SYNTHESIS

Safety Data Sheet

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
First-aid measures after skin contact	: Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Immediately call a POISON CENTER or doctor/physician. Specific measures (see ... on this label). Wash with plenty of soap and water. Wash contaminated clothing before reuse.
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 or doctor/physician.
First-aid measures after ingestion	: Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

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

Symptoms/injuries	: Causes severe skin burns and eye damage.
Symptoms/injuries after skin contact	: Repeated exposure to this material can result in absorption through skin causing significant health hazard. Harmful in contact with skin.
Symptoms/injuries after eye contact	: Causes serious eye damage.
Symptoms/injuries after ingestion	: Swallowing a small quantity of this material will result in serious health hazard.

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	: dry chemical powder, alcohol-resistant foam, carbon dioxide (CO ₂).
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 attempt to take action without suitable protective equipment.
--------------------------------	--

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 naked lights. 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.

METHYL CHLOROFORMATE 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. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible.

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 : No naked lights. No smoking. Use only non-sparking tools. Do not breathe dust/fume/gas/mist/vapours/spray.
Hygiene measures : Do not eat, drink or smoke when using this product. Wash ... thoroughly after handling. Wash contaminated clothing before reuse.

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. Comply with applicable regulations.
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 face shield
Skin and body protection : Wear suitable protective clothing
Respiratory protection : Wear respiratory protection

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid
Molecular mass : 94.5 g/mol
Colour : Colorless.
Odour : No data available
Odour threshold : No data available
pH : No data available
Relative evaporation rate (butylacetate=1) : No data available

METHYL CHLOROFORMATE FOR SYNTHESIS

Safety Data Sheet

Melting point	: -81 °C
Freezing point	: No data available
Boiling point	: 70 - 72
Flash point	: 10 °C
Critical temperature	: 252 °C
Auto-ignition temperature	: 485 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: Highly flammable liquid and vapour
Vapour pressure	: 108.5 mm Hg (at 20°C)
Relative vapour density at 20 °C	: > 1
Relative density	: No data available
Density	: 1.223 g/cm ³
Solubility	: Water: Insoluble in water
Log Pow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Thermal decomposition generates : Corrosive vapours.

10.2. Chemical stability

Highly flammable liquid and vapour. May form flammable/explosive vapour-air mixture.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Open flame. Direct sunlight.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

May release flammable gases. Thermal decomposition generates : Corrosive vapours.

METHYL CHLOROFORMATE FOR SYNTHESIS

Safety Data Sheet

SECTION 11: Toxicological information

11.1. Information on toxicological effects

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

Skin corrosion/irritation : Causes severe skin burns and eye damage.

Serious eye damage/irritation : Serious eye damage, category 1, implicit

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Potential adverse human health effects and symptoms : Harmful if swallowed. Harmful in contact with skin.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

METHYL CHLOROFORMATE FOR SYNTHESIS

Safety Data Sheet

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations	: Dispose of contents/container to ...
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)	: 1238
UN-No. (IMDG)	: 1238
UN-No.(IATA)	: 1238
UN-No.(ADN)	: 1238
UN-No. (RID)	: 1238

14.2. UN proper shipping name

Proper Shipping Name (ADR)	: METHYL CHLOROFORMATE
Proper Shipping Name (IMDG)	: METHYL CHLOROFORMATE
Proper Shipping Name (IATA)	: METHYL CHLOROFORMATE
Proper Shipping Name (ADN)	: METHYL CHLOROFORMATE
Proper Shipping Name (RID)	: METHYL CHLOROFORMATE
Transport document description (ADR)	: UN 1238 METHYL CHLOROFORMATE, 6.1 (3+8), I, (C/D)
Transport document description (IMDG)	: UN 1238 METHYL CHLOROFORMATE, 6.1 (3+8), I (5°C c.c.)
Transport document description (IATA)	: UN 1238 METHYL CHLOROFORMATE, 6.1, I
Transport document description (ADN)	: UN 1238 METHYL CHLOROFORMATE, 6.1 (3+8), I
Transport document description (RID)	: UN 1238 METHYL CHLOROFORMATE, 6.1 (3+8), I

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR)	: 6.1 (3, 8)
Danger labels (ADR)	: 6.1, 3, 8



IMDG

Transport hazard class(es) (IMDG)	: 6.1 (3, 8)
Danger labels (IMDG)	: 6.1, 3, 8



IATA

Transport hazard class(es) (IATA)	: 6.1 (3, 8)
Hazard labels (IATA)	: 6.1, 3, 8

METHYL CHLOROFORMATE FOR SYNTHESIS

Safety Data Sheet



ADN

Transport hazard class(es) (ADN) : 6.1 (3, 8)

Danger labels (ADN) : 6.1, 3, 8



RID

Transport hazard class(es) (RID) : 6.1 (3, 8)

Danger labels (RID) : 6.1, 3, 8



14.4. Packing group

Packing group (ADR) : I

Packing group (IMDG) : I

Packing group (IATA) : I

Packing group (ADN) : I

Packing group (RID) : I

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) : TFC

Special provision (ADR) : 354

Limited quantities (ADR) : 0

Excepted quantities (ADR) : E0

Packing instructions (ADR) : P602

Mixed packing provisions (ADR) : MP8, MP17

Portable tank and bulk container instructions (ADR) : T22

Portable tank and bulk container special provisions (ADR) : TP2, TP35

Tank code (ADR) : L15CH

Tank special provisions (ADR) : TU14, TU15, TE19, TE21

Vehicle for tank carriage : FL

Transport category (ADR) : 1

Special provisions for carriage - Loading, unloading and handling (ADR) : CV1, CV13, CV28

METHYL CHLOROFORMATE FOR SYNTHESIS

Safety Data Sheet

Special provisions for carriage - Operation (ADR) : S2, S9, S14

Hazard identification number (Kemler No.) : 663

Orange plates :



Tunnel restriction code (ADR) :

C/D

EAC code :

2WE

APP code :

A(fl)

- Transport by sea

Special provision (IMDG) :

354

Limited quantities (IMDG) :

0

Excepted quantities (IMDG) :

E0

Packing instructions (IMDG) :

P602

Tank instructions (IMDG) :

T22

Tank special provisions (IMDG) :

TP2, TP13, TP35

EmS-No. (Fire) :

F-E

EmS-No. (Spillage) :

S-C

Stowage category (IMDG) :

D

Stowage and handling (IMDG) :

SW2

Segregation (IMDG) :

SG5, SG8

Flash point (IMDG) :

5°C c.c.

MFAG-No

: 155

- Air transport

PCA Limited quantities (IATA) :

Forbidden

PCA limited quantity max net quantity (IATA) :

Forbidden

PCA packing instructions (IATA) :

Forbidden

PCA max net quantity (IATA) :

Forbidden

CAO packing instructions (IATA) :

Forbidden

CAO max net quantity (IATA) :

Forbidden

ERG code (IATA) :

6F

- Inland waterway transport

Classification code (ADN) :

TFC

Special provisions (ADN) :

354, 802

Limited quantities (ADN) :

0

Excepted quantities (ADN) :

E0

Equipment required (ADN) :

PP, EP, EX, TOX, A

Ventilation (ADN) :

VE01, VE02

Number of blue cones/lights (ADN) :

2

- Rail transport

Classification code (RID) :

TFC

Special provision (RID) :

354

Limited quantities (RID) :

0

Excepted quantities (RID) :

E0

Packing instructions (RID) :

P602

Mixed packing provisions (RID) :

MP8, MP17

Portable tank and bulk container instructions (RID) :

T22

Portable tank and bulk container special provisions (RID) :

TP2, TP35

METHYL CHLOROFORMATE FOR SYNTHESIS

Safety Data Sheet

Tank codes for RID tanks (RID)	: L15CH
Special provisions for RID tanks (RID)	: TU14, TU15, TU38, TE21, TE22, TE25
Transport category (RID)	: 1
Special provisions for carriage – Loading and unloading (RID)	: CW13, CW28, CW31
Hazard identification number (RID)	: 663

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

METHYL CHLOROFORMATE FOR SYNTHESIS is not on the REACH Candidate List

METHYL CHLOROFORMATE FOR SYNTHESIS is not on the REACH Annex XIV List

15.1.2. National regulations

Germany

AwSV/VwVwS Annex reference : Water hazard class (WGK) 2, hazardous to water (Classification according to VwVwS, Annex 2; WGK No 1138)

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

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
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

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

METHYL CHLOROFORMATE FOR SYNTHESIS

Safety Data Sheet

Acute Tox. 2 (Inhalation)	Acute toxicity (inhal.), Category 2
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Flam. Liq. 2	Flammable liquids, Category 2
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
H225	Highly flammable liquid and vapour
H302	Harmful if swallowed
H312	Harmful in contact with skin
H314	Causes severe skin burns and eye damage
H330	Fatal if inhaled
R11	Highly flammable
R21/22	Harmful in contact with skin and if swallowed
R26	Very toxic by inhalation
R34	Causes burns
C	Corrosive
F	Highly flammable
T+	Very toxic
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