



# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 05/05/2014

Version 1.3

## SECTION 1. Identification

### Product identifier

Product number	106007
Product name	Methanol gradient grade for liquid chromatography LiChrosolv® Reag. Ph Eur
Synonyms	MeOH
CAS-No.	67-56-1

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

Identified uses	Reagent for analysis, Analytical and preparative chromatography, Chemical production
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### Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation   290 Concord Road, Billerica, MA 01821, United States of America   General Inquiries: +1-978-715-4321   Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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## SECTION 2. Hazards identification

### GHS Classification

Flammable liquid, Category 2, H225  
Acute toxicity, Category 3, Oral, H301  
Acute toxicity, Category 3, Inhalation, H331  
Acute toxicity, Category 3, Dermal, H311  
Specific target organ systemic toxicity - single exposure, Category 1, Eyes, H370  
For the full text of the H-Statements mentioned in this Section, see Section 16.

### GHS-Labeling

*Hazard pictograms*



*Signal Word*

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Danger

### *Hazard Statements*

H225 Highly flammable liquid and vapor.

H301 + H311 + H331 Toxic if swallowed, in contact with skin or if inhaled.

H370 Causes damage to organs (Eyes).

### *Precautionary Statements*

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

P233 Keep container tightly closed.

P280 Wear protective gloves/ protective clothing.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

P403 + P235 Store in a well-ventilated place. Keep cool.

### **OSHA Hazards**

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS and may deviate from the GHS information.

### **Other hazards**

None known.

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## **SECTION 3. Composition/information on ingredients**

Formula	CH <sub>3</sub> OH	CH <sub>4</sub> O (Hill)
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Synonyms	MeOH
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Molar mass	32.04 g/mol
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### **Hazardous ingredients**

*Chemical Name (Concentration)*

CAS-No.

*methanol (>= 90 % - <= 100 % )*

67-56-1

Exact percentages are being withheld as a trade secret.

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## **SECTION 4. First aid measures**

### **Description of first-aid measures**

*General advice*

First aider needs to protect himself.

*Inhalation*

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

*Skin contact*

After skin contact: wash off with plenty of water. Remove contaminated clothing. Call a physician immediately.

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## *Eye contact*

After eye contact: rinse out with plenty of water. Call in ophthalmologist.

## *Ingestion*

After swallowing: fresh air. Make victim drink ethanol (e.g. 1 drinking glass of a 40% alcoholic beverage). Call a doctor immediately (mention methanol ingestion). Only in exceptional cases, if no medical care is available within one hour, induce vomiting (only in fully conscious persons) and make victim drink ethanol again (approx. 0.3 ml of a 40% alcoholic beverage/kg body weight/hour).

Never give anything by mouth to an unconscious person.

## **Most important symptoms and effects, both acute and delayed**

irritant effects, Drowsiness, Dizziness, narcosis, agitation, spasms, inebriation, Nausea, Vomiting, Headache, blindness, Impairment of vision, Coma  
Drying-out effect resulting in rough and chapped skin.

## **Indication of any immediate medical attention and special treatment needed**

No information available.

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## **SECTION 5. Fire-fighting measures**

### **Extinguishing media**

#### *Suitable extinguishing media*

Water, Carbon dioxide (CO<sub>2</sub>), 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**

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at ambient temperatures.

Pay attention to flashback.

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

### **Advice for firefighters**

#### *Special protective equipment for fire-fighters*

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*

Cool closed containers exposed to fire with water spray. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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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. Keep away from heat and sources of ignition. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

### **Environmental precautions**

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Do not empty into 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 with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.

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## **SECTION 7. Handling and storage**

### **Precautions for safe handling**

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

Observe label precautions.

#### *Advice on protection against fire and explosion*

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

### **Conditions for safe storage, including any incompatibilities**

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.

Store at +5°C to +30°C (+41°F to +86°F).

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**SECTION 8. Exposure controls/personal protection**

**Exposure limit(s)**

*Ingredients*

Basis	Value	Threshold limits	Remarks
<i>methanol 67-56-1</i>			
ACGIH	Time Weighted Average (TWA):	200 ppm	Can be absorbed through the skin.
	Short Term Exposure Limit (STEL):	250 ppm	
	Skin designation:		
NIOSH/GUIDE	Recommended exposure limit (REL):	200 ppm 260 mg/m <sup>3</sup>	Can be absorbed through the skin.
	Skin designation:		
	Short Term Exposure Limit (STEL):	250 ppm 325 mg/m <sup>3</sup>	
OSHA_TRANS	PEL:	200 ppm 260 mg/m <sup>3</sup>	
Z1A	Time Weighted Average (TWA):	200 ppm 260 mg/m <sup>3</sup>	Can be absorbed through the skin.
	Skin designation (Final Rule Limit applies):		
	Short Term Exposure Limit (STEL):	250 ppm 325 mg/m <sup>3</sup>	

**Engineering measures**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

**Individual protection measures**

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

*Hygiene measures*

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

*Eye/face protection*

Safety glasses

*Hand protection*

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

*Other protective equipment:*

Flame retardant antistatic protective clothing

*Respiratory protection*

required when vapors/aerosols are generated.

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Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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## SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	characteristic
Odor Threshold	10 - 20000 ppm
pH	No information available.
Melting point	-98 °C
Boiling point/boiling range	148.1 °F (64.5 °C) at 1,013 hPa
Flash point	50 °F (10 °C) Method: c.c.
Evaporation rate	6.3 Reference substance: Diethyl ether
	1.9 Reference substance: n-butyl acetate
Flammability (solid, gas)	No information available.
Lower explosion limit	5.5 %(V)
Upper explosion limit	44 %(V)
Vapor pressure	128 hPa at 68 °F (20 °C)
Relative vapor density	1.11
Density	0.792 g/cm <sup>3</sup> at 68 °F (20 °C)
Relative density	No information available.
Water solubility	at 68 °F (20 °C) soluble

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Partition coefficient: n-octanol/water	log Pow: -0.77 (experimental) (Lit.) Bioaccumulation is not expected.
Autoignition temperature	851 °F (455 °C)
Decomposition temperature	Distillable in an undecomposed state at normal pressure.
Viscosity, dynamic	0.597 mPa.s at 68 °F (20 °C)
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Ignition temperature	851 °F (455 °C) DIN 51794
Minimum ignition energy	0.14 mJ
Conductivity	< 1 µS/cm

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## SECTION 10. Stability and reactivity

### Reactivity

Vapors may form explosive mixture with air.

### Chemical stability

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

### Possibility of hazardous reactions

Risk of explosion with:

Oxidizing agents, perchloric acid, perchlorates, salts of oxyhalogenic acids, chromium(VI) oxide, halogen oxides, nitrogen oxides, nonmetallic oxides, chromosulfuric acid, chlorates, hydrides, zinc diethyl, halogens, magnesium, hydrogen peroxide, Nitric acid

Exothermic reaction with:

acid halides, Acid anhydrides, Reducing agents, acids

Generates dangerous gases or fumes in contact with:

Alkaline earth metals, Alkali metals

### Conditions to avoid

Warming.

### Incompatible materials

various plastics, magnesium, zinc alloys

### Hazardous decomposition products

no information available

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## SECTION 11. Toxicological information

### Information on toxicological effects

#### *Likely route of exposure*

Inhalation, Eye contact, Skin contact

#### *Target Organs*

Eyes

Skin

Respiratory system

Central nervous system

gastrointestinal tract

#### *Acute oral toxicity*

LDLO human: 143 mg/kg (RTECS)

LD50 rat: 5,628 mg/kg (IUCLID)

absorption

Symptoms: Nausea, Vomiting

#### *Acute inhalation toxicity*

LC50 rat: 85.26 mg/l; 4 h (IUCLID)

absorption

Symptoms: Irritation symptoms in the respiratory tract.

#### *Acute dermal toxicity*

LD50 rabbit: ca. 17,100 mg/kg

(External MSDS)

absorption

#### *Skin irritation*

Drying-out effect resulting in rough and chapped skin.

#### *Eye irritation*

Irritations of mucous membranes

#### *Sensitization*

Sensitization test: guinea pig

Result: negative

(IUCLID)

#### *Genotoxicity in vivo*

Mutagenicity (mammal cell test): micronucleus.

Result: negative

(IUCLID)

#### *Genotoxicity in vitro*

Ames test

Result: negative

(IUCLID)



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### *CMR effects*

Carcinogenicity:

Did not show carcinogenic effects in animal experiments.

Mutagenicity:

Regarding the available data the classification criteria are not fulfilled.

Teratogenicity:

Regarding the available data the classification criteria are not fulfilled.

Reproductive toxicity:

Regarding the available data the classification criteria are not fulfilled.

### *Specific target organ systemic toxicity - single exposure*

Target Organs: Eyes

Causes damage to organs.

### *Specific target organ systemic toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

### *Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

## **Carcinogenicity**

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

## **Further information**

Systemic effects:

acidosis, drop in blood pressure, agitation, spasms, inebriation, Dizziness, Drowsiness, Headache, Impairment of vision, blindness, narcosis, Coma

Symptoms may be delayed.

Damage to:

Liver, Kidney, Cardiac, Irreversible damage of the optical nerve.

Handle in accordance with good industrial hygiene and safety practice.

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## **SECTION 12. Ecological information**

### **Ecotoxicity**

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### *Toxicity to fish*

LC50 *Lepomis macrochirus* (Bluegill sunfish): 15,400 mg/l; 96 h (in soft water) (ECOTOX Database)

### *Toxicity to daphnia and other aquatic invertebrates*

EC5 *E.sulcatum*: > 10,000 mg/l; 72 h (Lit.)

EC50 *Daphnia magna* (Water flea): > 10,000 mg/l; 48 h (IUCLID)

### *Toxicity to algae*

EC50 *Pseudokirchneriella subcapitata* (green algae): ca. 22,000 mg/l; 96 h (External MSDS)

IC5 *Scenedesmus quadricauda* (Green algae): 8,000 mg/l; 8 d (IUCLID)

### *Toxicity to bacteria*

EC5 *Pseudomonas fluorescens*: 6,600 mg/l; 16 h (IUCLID)

### *Toxicity to fish (Chronic toxicity)*

NOEC *Oryzias latipes* (Orange-red killifish): 7,900 mg/l; 200 h (External MSDS)

## **Persistence and degradability**

### *Biodegradability*

99 %; 30 d

OECD Test Guideline 301D

Readily biodegradable.

### *Biochemical Oxygen Demand (BOD)*

600 - 1,120 mg/g (5 d)

(IUCLID)

### *Chemical Oxygen Demand (COD)*

1,420 mg/g

(IUCLID)

### *Theoretical oxygen demand (ThOD)*

1,500 mg/g

(Lit.)

### *Ratio BOD/ThBOD*

BOD5 76 %

Closed Bottle test

## **Bioaccumulative potential**

### *Partition coefficient: n-octanol/water*

log Pow: -0.77

(experimental)

(Lit.) Bioaccumulation is not expected.

## **Mobility in soil**

No information available.

## **Other adverse effects**

### *Surface tension*

22.6 mN/m

at 68 °F (20 °C)

### *Stability in water*

2.2 yr

reaction with hydroxyl radicals (IUCLID)

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## *Additional ecological information*

Discharge into the environment must be avoided.

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## **SECTION 13. Disposal considerations**

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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## **SECTION 14. Transport information**

### **Land transport (DOT)**

<b>UN number</b>	UN 1230
<b>Proper shipping name</b>	METHANOL
<b>Class</b>	3
<b>Packing group</b>	II
<b>Environmentally hazardous</b>	--

### **Air transport (IATA)**

<b>UN number</b>	UN 1230
<b>Proper shipping name</b>	METHANOL
<b>Class</b>	3 (6.1)
<b>Packing group</b>	II
<b>Environmentally hazardous</b>	--
<b>Special precautions for user</b>	no

### **Sea transport (IMDG)**

<b>UN number</b>	UN 1230
<b>Proper shipping name</b>	METHANOL
<b>Class</b>	3 (6.1)
<b>Packing group</b>	II
<b>Environmentally hazardous</b>	--
<b>Special precautions for user</b>	yes
<b>EmS</b>	F-E S-D

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## **SECTION 15. Regulatory information**

### **United States of America**

#### **OSHA Hazards**

Flammable Liquid  
Target organ effects  
Toxic by ingestion  
Toxic by inhalation.  
Toxic by skin absorption  
Respiratory irritant

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Skin irritant

Eye irritant

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

## SARA 311/312 Hazards

Fire Hazard

Chronic Health Hazard

## SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

### *Ingredients*

methanol

67-56-1

100 %

## SARA 302

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

## Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

## DEA List I

Not listed

## DEA List II

Not listed

## US State Regulations

### Massachusetts Right To Know

#### *Ingredients*

methanol

### Pennsylvania Right To Know

#### *Ingredients*

methanol

### New Jersey Right To Know

#### *Ingredients*

methanol

### California Prop 65 Components

WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

#### *Ingredients*

methanol

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## Notification status

TSCA:

All components of the product are listed in the TSCA-inventory.

DSL:

All components of this product are on the Canadian DSL.

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## SECTION 16. Other information

### Training advice

Provide adequate information, instruction and training for operators.

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

H225	Highly flammable liquid and vapor.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H331	Toxic if inhaled.
H370	Causes damage to organs.

### Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

Revision Date 05/05/2014

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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