SECTION 1: Identification

1.1 Product identifier

Identification of the substance: Methanol

Article number: HN41

Registration number (REACH): 01-2119433307-44-xxxx

Index No: 603-001-00-X

EC number: 200-659-6

CAS number: 67-56-1

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

Identified uses:
- laboratory chemical
- laboratory and analytical use
- industrial use
- professional use
- Use in cleaning agents
- formulation [mixing] of preparations and/or re-packaging (excluding alloys)

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0
Telefax: +49 (0) 721 - 56 06 149
e-mail: sicherheit@carlroth.de
Website: www.carlroth.de

Competent person responsible for the safety data sheet: Department Health, Safety and Environment

E-mail (competent person): sicherheit@carlroth.de

1.4 Emergency telephone number

<table>
<thead>
<tr>
<th>Name</th>
<th>Street</th>
<th>Postal code/city</th>
<th>Telephone</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poison and Drug Information Services Foothills Medical Centre 1403</td>
<td>29th Street N.W.</td>
<td>T2N 2T9 Calgary</td>
<td>+1 403 944 1414</td>
<td></td>
</tr>
</tbody>
</table>

Emergency information service: +49/(0)89 19240
SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture

**Classification Hazardous Products Regulations**

<table>
<thead>
<tr>
<th>Classification acc. to GHS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Section</strong></td>
</tr>
<tr>
<td>2.6</td>
</tr>
<tr>
<td>3.1O</td>
</tr>
<tr>
<td>3.1D</td>
</tr>
<tr>
<td>3.1I</td>
</tr>
<tr>
<td>3.8</td>
</tr>
</tbody>
</table>

2.2 Label elements

**Labeling GHS**

**Signal word** Danger

**Pictograms**

GHS02, GHS06, GHS08

**Hazard statements**

- H225: Highly flammable liquid and vapour
- H301+H311+H331: Toxic if swallowed, in contact with skin or if inhaled
- H370: Causes damage to organs (eye)

**Precautionary statements**

**Precautionary statements - prevention**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not breathe dust/fume/gas/mist/vapours/spray. Wear protective gloves/protective clothing.

**Precautionary statements - response**

IF SWALLOWED: Immediately call a POISON CENTER/doctor. IF ON SKIN: Wash with plenty of soap and water. IF exposed or concerned: Call a POISON CENTER/doctor. In case of fire: Use sand, carbon dioxide or powder extinguisher to extinguish.

**Precautionary statements - storage**

Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool.

**Labelling of packages where the contents do not exceed 125 ml**

Signal word: Danger
Safety data sheet
Hazardous Products Regulations (HPR)

Methanol ROTISOLV® ≥ 99,98%, Ultra LC-MS
article number: HN41

Symbol(s)

H301+H311+H331 Toxic if swallowed, in contact with skin or if inhaled.
H370 Causes damage to organs (eye).

Do not breathe dust/fume/gas/mist/vapours/spray.
Wear protective gloves/protective clothing.
IF SWALLOWED: Immediately call a POISON CENTER/doctor.
IF ON SKIN: Wash with plenty of soap and water.
IF exposed or concerned: Call a POISON CENTER/doctor.
Store in a well-ventilated place. Keep container tightly closed.

2.3 Other hazards
There is no additional information.

SECTION 3: Composition/information on ingredients

3.1 Substances

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>Methanol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index No</td>
<td>603-001-00-X</td>
</tr>
<tr>
<td>Registration number (REACH)</td>
<td>01-211943307-44-xxxx</td>
</tr>
<tr>
<td>EC number</td>
<td>200-659-6</td>
</tr>
<tr>
<td>CAS number</td>
<td>67-56-1</td>
</tr>
<tr>
<td>Molecular formula</td>
<td>CH₄O</td>
</tr>
<tr>
<td>Molar mass</td>
<td>32.04 g/mol</td>
</tr>
</tbody>
</table>

SECTION 4: First-aid measures

4.1 Description of first-aid measures

General notes
Take off immediately all contaminated clothing. Self-protection of the first aider.

Following inhalation
Call a physician immediately. If breathing is irregular or stopped, administer artificial respiration.

Following skin contact
After contact with skin, wash immediately with plenty of water.

Following eye contact
Rinse cautiously with water for several minutes. In all cases of doubt, or when symptoms persist, seek medical advice.

Following ingestion
Rinse mouth immediately and drink plenty of water. Call a physician immediately.
4.2 Most important symptoms and effects, both acute and delayed

After eye contact: Conjunctival redness of the eyes, Conjunctivitis (pink eye), Following skin contact: Has degreasing effect on the skin, After ingestion: Abdominal pain, Malaise, Vomiting, Loss of righting reflex, and ataxia, Serious physical decay of vision, Risk of blindness, Poisoning effect on central nervous system can cause convulsions, labored breathing and loss of consciousness, Headaches and dizziness may occur, proceeding to fainting or unconsciousness, Large doses may result in coma and death, Following inhalation: Cough

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media
Co-ordinate fire-fighting measures to the fire surroundings
water spray, foam, alcohol resistant foam, dry extinguishing powder, carbon dioxide (CO2)

Unsuitable extinguishing media
water jet

5.2 Special hazards arising from the substance or mixture
Combustible. Vapours are heavier than air, spread along floors and form explosive mixtures with air. Vapours can form explosive mixtures with air.

Hazardous combustion products
In case of fire may be liberated: carbon monoxide (CO), carbon dioxide (CO2)

5.3 Advice for firefighters
Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus. Wear full chemical protective clothing.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. Avoid contact with skin, eyes and clothes. Do not breathe vapor/spray. Avoidance of ignition sources.

6.2 Environmental precautions
Keep away from drains, surface and ground water. Explosive properties.
6.3 Methods and material for containment and cleaning up

Advises on how to contain a spill
Covering of drains.

Advises on how to clean up a spill
Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

Other information relating to spills and releases
Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Provision of sufficient ventilation. Use extractor hood (laboratory). Handle and open container with care. Clear contaminated areas thoroughly.

• Measures to prevent fire as well as aerosol and dust generation

Keep away from sources of ignition - No smoking.

Take precautionary measures against static discharge. Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches.

Advice on general occupational hygiene
When using do not eat or drink. Thorough skin-cleansing after handling the product. When using do not smoke.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed.

Incompatible substances or mixtures
Observe compatible storage of chemicals.

Consideration of other advice
Store locked up. Ground/bond container and receiving equipment.

• Ventilation requirements
Use local and general ventilation.

• Specific designs for storage rooms or vessels
Recommended storage temperature: 15 – 25 °C.

7.3 Specific end use(s)
No information available.
SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

<table>
<thead>
<tr>
<th>Country</th>
<th>Name of agent</th>
<th>CAS No</th>
<th>Notation</th>
<th>Identifier</th>
<th>TWA [ppm]</th>
<th>TWA [mg/m³]</th>
<th>STEL [ppm]</th>
<th>STEL [mg/m³]</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>methanol</td>
<td>67-56-1</td>
<td>OEL (BC)</td>
<td>200</td>
<td>250</td>
<td></td>
<td></td>
<td></td>
<td>“BC Regulation”</td>
</tr>
<tr>
<td>CA</td>
<td>methanol (methyl alcohol)</td>
<td>67-56-1</td>
<td>OEL (AB)</td>
<td>200</td>
<td>262</td>
<td>250</td>
<td>328</td>
<td></td>
<td>OHS Code</td>
</tr>
<tr>
<td>CA</td>
<td>methyl alcohol</td>
<td>67-56-1</td>
<td>PEV/VEA</td>
<td>200</td>
<td>262</td>
<td>250</td>
<td>328</td>
<td></td>
<td>Regulation OHS</td>
</tr>
</tbody>
</table>

Notation

STEL  Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
TWA   Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Relevant DNELs/DMELs/PNECs and other threshold levels

• human health values

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Threshold level</th>
<th>Protection goal, route of exposure</th>
<th>Used in</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNEL</td>
<td>260 mg/m³</td>
<td>human, inhalatory</td>
<td>worker (industry)</td>
<td>acute - local effects</td>
</tr>
<tr>
<td>DNEL</td>
<td>40 mg/kg</td>
<td>human, dermal</td>
<td>worker (industry)</td>
<td>acute - systemic effects</td>
</tr>
<tr>
<td>DNEL</td>
<td>260 mg/m³</td>
<td>human, inhalatory</td>
<td>worker (industry)</td>
<td>acute - systemic effects</td>
</tr>
<tr>
<td>DNEL</td>
<td>260 mg/m³</td>
<td>human, inhalatory</td>
<td>worker (industry)</td>
<td>chronic - local effects</td>
</tr>
<tr>
<td>DNEL</td>
<td>40 mg/kg</td>
<td>human, dermal</td>
<td>worker (industry)</td>
<td>chronic - systemic effects</td>
</tr>
<tr>
<td>DNEL</td>
<td>260 mg/m³</td>
<td>human, inhalatory</td>
<td>worker (industry)</td>
<td>chronic - systemic effects</td>
</tr>
</tbody>
</table>

• environment values

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Threshold level</th>
<th>Environmental compartment</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNEC</td>
<td>20.8 mg/l</td>
<td>freshwater</td>
<td>short-term (single instance)</td>
</tr>
<tr>
<td>PNEC</td>
<td>2.08 mg/l</td>
<td>marine water</td>
<td>short-term (single instance)</td>
</tr>
<tr>
<td>PNEC</td>
<td>100 mg/l</td>
<td>sewage treatment plant (STP)</td>
<td>short-term (single instance)</td>
</tr>
<tr>
<td>PNEC</td>
<td>77 mg/kg</td>
<td>freshwater sediment</td>
<td>short-term (single instance)</td>
</tr>
<tr>
<td>PNEC</td>
<td>7.7 mg/kg</td>
<td>marine sediment</td>
<td>short-term (single instance)</td>
</tr>
<tr>
<td>PNEC</td>
<td>100 mg/kg</td>
<td>soil</td>
<td>short-term (single instance)</td>
</tr>
</tbody>
</table>

8.2 Exposure controls
Individual protection measures (personal protective equipment)

Eye/face protection

Use safety goggles with side protection.

Skin protection

- Hand protection
  Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.
  
  - Type of material
    Butyl caoutchouc (butyl rubber)
  
  - Material thickness
    0.7mm
  
  - Breakthrough times of the glove material
    >480 minutes (permeation: level 6)
  
  - Other protection measures
    Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.
    Flame-retardant protective clothing.

Respiratory protection

Respiratory protection necessary at: Aerosol or mist formation. Type: A (against organic gases and vapors with a boiling point of > 65 °C, color code: Brown).

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

<table>
<thead>
<tr>
<th>Physical state</th>
<th>liquid (fluid)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>like: alcohol</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
</tbody>
</table>

Other physical and chemical parameters
**Safety data sheet**

Hazardous Products Regulations (HPR)

**Methanol ROTISOLV® ≥ 99.98%, Ultra LC-MS**

article number: HN41

- **pH (value)**: This information is not available.
- **Melting point/freezing point**: -98 °C
- **Initial boiling point and boiling range**: 65 °C at 1,013 hPa
- **Flash point**: 9.7 °C at 1,013 hPa
- **Evaporation rate**: no data available
- **Flammability (solid, gas)**: not relevant (fluid)
- **Explosive limits**
  - **lower explosion limit (LEL)**: 5.5 vol%
  - **upper explosion limit (UEL)**: 44 vol%
- **Explosion limits of dust clouds**: not relevant
- **Vapor pressure**: 128 hPa at 20 °C
  - 200 hPa at 30 °C
- **Density**: 0.79 g/cm³ at 20 °C
- **Vapor density**: 1.11 (air = 1)
- **Bulk density**: Not applicable
- **Relative density**: Information on this property is not available.
- **Solubility(ies)**
  - **Water solubility**: miscible in any proportion
- **Partition coefficient**
- **n-octanol/water (log KOW)**: -0.77 (ECHA)
- **Auto-ignition temperature**: 455 °C at 1,013 hPa - ECHA
- **Decomposition temperature**: no data available
- **Viscosity**
  - **dynamic viscosity**: 0.6 mPa s at 20 °C
- **Explosive properties**: Shall not be classified as explosive
- **Oxidizing properties**: none

### 9.2 Other information

#### SECTION 10: Stability and reactivity

**10.1 Reactivity**

Risk of ignition. Vapours can form explosive mixtures with air.

**10.2 Chemical stability**

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

**10.3 Possibility of hazardous reactions**

Violent reaction with: Alkaline earth metal, Nitric acid, Sulphuric acid, concentrated, Strong oxidizer, Hydrogen peroxide
10.4 **Conditions to avoid**
There are no specific conditions known which have to be avoided.

10.5 **Incompatible materials**
There is no additional information.

10.6 **Hazardous decomposition products**
Hazardous combustion products: see section 5.

# SECTION 11: Toxicological information

11.1 **Information on toxicological effects**

## Acute toxicity

<table>
<thead>
<tr>
<th>Exposure route</th>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>inhalation: vapour</td>
<td>LC50</td>
<td>128 mg/l/4h</td>
<td>rat</td>
<td>ECHA</td>
</tr>
<tr>
<td>oral</td>
<td>LD50</td>
<td>5,628 mg/kg</td>
<td>rat</td>
<td>TOXNET</td>
</tr>
<tr>
<td>oral</td>
<td>LDLo</td>
<td>143 mg/kg</td>
<td>human</td>
<td>TOXNET</td>
</tr>
<tr>
<td>dermal</td>
<td>LD50</td>
<td>15,800 mg/kg</td>
<td>rabbit</td>
<td>TOXNET</td>
</tr>
</tbody>
</table>

**Skin corrosion/irritation**
Shall not be classified as corrosive/irritant to skin.

**Serious eye damage/eye irritation**
Shall not be classified as seriously damaging to the eye or eye irritant.

**Respiratory or skin sensitization**
Shall not be classified as a respiratory or skin sensitizer.

**Summary of evaluation of the CMR properties**
Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant

- **Specific target organ toxicity - single exposure**
  Causes damage to organs (eye).

- **Specific target organ toxicity - repeated exposure**
  Shall not be classified as a specific target organ toxicant (repeated exposure).

**Aspiration hazard**
Shall not be classified as presenting an aspiration hazard.

**Symptoms related to the physical, chemical and toxicological characteristics**

- **If swallowed**
  abdominal pain, vomiting, loss of righting reflex, and ataxia, poisoning effect on central nervous system can cause convulsions, labored breathing and loss of consciousness, risk of blindness, large doses may result in coma and death

- **If in eyes**
  conjunctivitis (pink eye)

- **If inhaled**
  cough
• If on skin
has degreasing effect on the skin

Other information
None

SECTION 12: Ecological information

12.1 Toxicity
acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute)

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
<th>Source</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50</td>
<td>15,400 mg/l</td>
<td>bluegill (Lepomis macrochirus)</td>
<td>ECHA</td>
<td>96 h</td>
</tr>
<tr>
<td>EC50</td>
<td>12,700 mg/l</td>
<td>bluegill (Lepomis macrochirus)</td>
<td>ECHA</td>
<td>96 h</td>
</tr>
<tr>
<td>ErC50</td>
<td>22,000 mg/l</td>
<td>Pseudokirchneriella subcapitata</td>
<td>ECHA</td>
<td>96 h</td>
</tr>
</tbody>
</table>

Aquatic toxicity (chronic)

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
<th>Source</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOEC</td>
<td>47.49 mg/l</td>
<td>fish</td>
<td>ECHA</td>
<td>90 d</td>
</tr>
<tr>
<td>NOEC</td>
<td>23.75 mg/l</td>
<td>fish</td>
<td>ECHA</td>
<td>90 d</td>
</tr>
</tbody>
</table>

12.2 Process of degradability
The substance is readily biodegradable.
Theoretical Oxygen Demand: 1,500 mg/g
Theoretical Carbon Dioxide: 1.374 mg/mg
Biochemical Oxygen Demand: 600 – 1,120 mg/g at 5 h

<table>
<thead>
<tr>
<th>Process</th>
<th>Degradation rate</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>biotic/abiotic</td>
<td>99 %</td>
<td>30 d</td>
</tr>
<tr>
<td>oxygen depletion</td>
<td>76 %</td>
<td>5 d</td>
</tr>
</tbody>
</table>

12.3 Bioaccumulative potential
Does not significantly accumulate in organisms.
n-octanol/water (log KOW) -0.77

12.4 Mobility in soil
Data are not available.

12.5 Results of PBT and vPvB assessment
Data are not available.

12.6 Other adverse effects
Data are not available.
SECTION 13: Disposal considerations

13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

**Sewage disposal-relevant information**
Do not empty into drains.

**Waste treatment of containers/packages**
It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

**Sewage disposal-relevant information**
Do not empty into drains.

13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1 UN number
1230

14.2 UN proper shipping name
METHANOL

14.3 Hazardous ingredients
Methanol

14.4 Transport hazard class(es)
Class 3 (flammable liquids)

14.5 Packing group
II (substance presenting medium danger)

14.6 Environmental hazards
none (non-environmentally hazardous acc. to the dangerous goods regulations)

14.6 Special precautions for user
Provisions for dangerous goods (ADR) should be complied within the premises.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code
The cargo is not intended to be carried in bulk.
14.8 Information for each of the UN Model Regulations

- Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

  UN number 1230
  Proper shipping name METHANOL
  Particulars in the transport document UN1230, METHANOL, 3 (6.1), II, (D/E)
  Class 3
  Classification code FT1
  Packing group II
  Danger label(s) 3+6.1
  Special provisions (SP) 279, 802(ADN)
  Excepted quantities (EQ) E2
  Limited quantities (LQ) 1 L
  Transport category (TC) 2
  Tunnel restriction code (TRC) D/E
  Hazard identification No 336

- International Maritime Dangerous Goods Code (IMDG)

  UN number 1230
  Proper shipping name METHANOL
  Particulars in the shipper's declaration UN1230, METHANOL, 3 (6.1), II, 9.7°C c.c.
  Class 3
  Subsidiary risk(s) 6.1
  Marine pollutant -
  Packing group II
  Danger label(s) 3+6.1
  Special provisions (SP) 279
  Excepted quantities (EQ) E2
  Limited quantities (LQ) 1 L
  EmS F-E, S-D
  Stowage category B

- International Civil Aviation Organization (ICAO-IATA/DGR)

  UN number 1230

Safety data sheet
Hazardous Products Regulations (HPR)

Methanol ROTISOLV® ≥ 99.98%, Ultra LC-MS

article number: HN41
Proper shipping name: Methanol

Particulars in the shipper’s declaration: UN1230, Methanol, 3 (6.1), II

Class: 3

Subsidiary risk(s): 6.1

Packing group: II

Danger label(s): 3+6.1

Special provisions (SP): A113

Excepted quantities (EQ): E2

Limited quantities (LQ): 1 L

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

National regulations (United States)

Toxic Substance Control Act (TSCA)
Not listed.

The List of Extremely Hazardous Substances and Their Threshold Planning Quantities (EPCRA Section 302, 304)
Not listed.

CERCLA

List of Hazardous Substances and Reportable Quantities (CERCLA section 102a) (40 CFR 302.4)

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Wt%</th>
<th>Remarks</th>
<th>Statutory code</th>
<th>RCRA waste No.</th>
<th>Final RQ pounds (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>100</td>
<td></td>
<td>3</td>
<td>U154</td>
<td>5000 (2270)</td>
</tr>
</tbody>
</table>

Legend

3 "3" indicates that the source is section 112 of the Clean Air Act

4 "4" indicates that the source is section 3001 of the Resource Conservation and Recovery Act (RCRA)

Clean Air Act
Not listed.

New Jersey Worker and Community Right to Know Act

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Wt%</th>
<th>Remarks</th>
<th>Classifications</th>
<th>Listed in</th>
<th>Substance number</th>
<th>DOT number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>100</td>
<td></td>
<td>TE F3</td>
<td>1 2 3 4 6 8 15 17</td>
<td>1222</td>
<td>1230</td>
</tr>
</tbody>
</table>
Methanol ROTISOLV® ≥ 99.98%, Ultra LC-MS

article number: HN41

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Wt%</th>
<th>Remarks</th>
<th>Classifications</th>
<th>Listed in</th>
<th>Substance number</th>
<th>DOT number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18</td>
<td>20 21</td>
</tr>
</tbody>
</table>

Legend
2 "2009 TLVs® and BEIs®, Threshold Limit Values and Biological Exposure Indices," American Conference of Governmental Industrial Hygienists (ACGIH), 2009.
F3 Flammable - Third Degree
TE Teratogenic

California Environmental Protection Agency (Cal/EPA): Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1987

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Wt%</th>
<th>Remarks</th>
<th>Type of the toxicity</th>
<th>Remarks</th>
<th>NSRL or MADL (µg/day)</th>
<th>Date listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>100</td>
<td></td>
<td>developmental</td>
<td></td>
<td>47,000 (inhala-tion) 23,000 (oral)</td>
<td>2012-03-16</td>
</tr>
</tbody>
</table>

Drug precursors
Not listed.

Industry or sector specific available guidance(s)
NPCA-HMIS® III


<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic</td>
<td>/</td>
<td>none</td>
</tr>
<tr>
<td>Health</td>
<td>2</td>
<td>temporary or minor injury may occur</td>
</tr>
<tr>
<td>Flammability</td>
<td>3</td>
<td>material that can be ignited under almost all ambient temperature conditions</td>
</tr>
<tr>
<td>Physical hazard</td>
<td>0</td>
<td>material that is normally stable, even under fire conditions, and will not react with water, polymerize, decompose, condense, or self-react. Non-explosive</td>
</tr>
<tr>
<td>Personal protection</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>
Safety data sheet
Hazardous Products Regulations (HPR)

Methanol ROTISOLV® ≥ 99.98%, Ultra LC-MS

article number: HN41

Chronic: Chronic hazard
Flammability: Flammability hazard
Health: Health hazard
Personal protection: Personal protective equipment (PPE) for normal use
Physical hazard: Reactivity

NFPA® 704

<table>
<thead>
<tr>
<th>Category</th>
<th>Degree of hazard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>3</td>
<td>material that can be ignited under almost all ambient temperature conditions</td>
</tr>
<tr>
<td>Health</td>
<td>2</td>
<td>material that, under emergency conditions, can cause temporary incapacitation or residual injury</td>
</tr>
<tr>
<td>Instability</td>
<td>0</td>
<td>material that is normally stable, even under fire conditions</td>
</tr>
</tbody>
</table>

Special hazard

National regulations Canada: Domestic Substances List (DSL)
Substance is listed.

National inventories
Substance is listed in the following national inventories:

<table>
<thead>
<tr>
<th>Country</th>
<th>National inventories</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU</td>
<td>AICS</td>
<td>substance is listed</td>
</tr>
<tr>
<td>CA</td>
<td>DSL</td>
<td>substance is listed</td>
</tr>
<tr>
<td>CN</td>
<td>IECSC</td>
<td>substance is listed</td>
</tr>
<tr>
<td>EU</td>
<td>ECSI</td>
<td>substance is listed</td>
</tr>
<tr>
<td>EU</td>
<td>REACH Reg.</td>
<td>substance is listed</td>
</tr>
<tr>
<td>JP</td>
<td>CSCL-ENCS</td>
<td>substance is listed</td>
</tr>
<tr>
<td>KR</td>
<td>KECI</td>
<td>substance is listed</td>
</tr>
<tr>
<td>MX</td>
<td>INSQ</td>
<td>substance is listed</td>
</tr>
<tr>
<td>NZ</td>
<td>NZIoC</td>
<td>substance is listed</td>
</tr>
<tr>
<td>PH</td>
<td>PICCS</td>
<td>substance is listed</td>
</tr>
<tr>
<td>TR</td>
<td>CICR</td>
<td>substance is listed</td>
</tr>
<tr>
<td>TW</td>
<td>TCSI</td>
<td>substance is listed</td>
</tr>
<tr>
<td>US</td>
<td>TSCA</td>
<td>substance is listed</td>
</tr>
</tbody>
</table>

Legend
AICS: Australian Inventory of Chemical Substances
CICR: Chemical Inventory and Control Regulation
CSCL-ENCS: List of Existing and New Chemical Substances (CSCL-ENCS)
DSL: Domestic Substances List (DSL)
ECSI: EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC: Inventory of Existing Chemical Substances Produced or Imported in China
INSQ: National Inventory of Chemical Substances
15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

**SECTION 16: Other information, including date of preparation or last revision**

16.1 Indication of changes (revised safety data sheet)

<table>
<thead>
<tr>
<th>Section</th>
<th>Former entry (text/value)</th>
<th>Actual entry (text/value)</th>
<th>Safety-relevant</th>
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</thead>
<tbody>
<tr>
<td>2.2</td>
<td></td>
<td>Pictograms: change in the listing (table)</td>
<td>yes</td>
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</tbody>
</table>

**Abbreviations and acronyms**

<table>
<thead>
<tr>
<th>Abbr.</th>
<th>Descriptions of used abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>“BC Regulation”</td>
<td>OHS Regulation: Section 5.48 (British Columbia)</td>
</tr>
<tr>
<td>ADN</td>
<td>Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)</td>
</tr>
<tr>
<td>ADR</td>
<td>Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)</td>
</tr>
<tr>
<td>CERCLA</td>
<td>Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)</td>
</tr>
<tr>
<td>CMR</td>
<td>Carcinogenic, Mutagenic or toxic for Reproduction</td>
</tr>
<tr>
<td>DGR</td>
<td>Dangerous Goods Regulations (see IATA/DGR)</td>
</tr>
<tr>
<td>DMEL</td>
<td>Derived Minimal Effect Level</td>
</tr>
<tr>
<td>DNEL</td>
<td>Derived No-Effect Level</td>
</tr>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Commercial Chemical Substances</td>
</tr>
<tr>
<td>ELINCS</td>
<td>European List of Notified Chemical Substances</td>
</tr>
<tr>
<td>EmS</td>
<td>Emergency Schedule</td>
</tr>
<tr>
<td>GHS</td>
<td>“Globally Harmonized System of Classification and Labelling of Chemicals” developed by the United Nations</td>
</tr>
<tr>
<td>IATA</td>
<td>International Air Transport Association</td>
</tr>
<tr>
<td>IATA/DGR</td>
<td>Dangerous Goods Regulations (DGR) for the air transport (IATA)</td>
</tr>
<tr>
<td>ICAO</td>
<td>International Civil Aviation Organization</td>
</tr>
<tr>
<td>IMDG</td>
<td>International Maritime Dangerous Goods Code</td>
</tr>
<tr>
<td>Index No</td>
<td>the Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008</td>
</tr>
<tr>
<td>MARPOL</td>
<td>International Convention for the Prevention of Pollution from Ships (abbr. of “Marine Pollutant”)</td>
</tr>
</tbody>
</table>
**Safety data sheet**

Hazardous Products Regulations (HPR)

**Methanol ROTISOLV® ≥ 99,98%, Ultra LC-MS**

article number: HN41

<table>
<thead>
<tr>
<th>Abbr.</th>
<th>Descriptions of used abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>NLP</td>
<td>No-Longer Polymer</td>
</tr>
<tr>
<td>PBT</td>
<td>Persistent, Bioaccumulative and Toxic</td>
</tr>
<tr>
<td>PNEC</td>
<td>Predicted No-Effect Concentration</td>
</tr>
<tr>
<td>ppm</td>
<td>parts per million</td>
</tr>
<tr>
<td>REACH</td>
<td>Registration, Evaluation, Authorisation and Restriction of Chemicals</td>
</tr>
<tr>
<td>Regulation OHS</td>
<td>Regulation respecting occupational health and safety: Permissible exposure values for airborne contaminants (Quebec)</td>
</tr>
<tr>
<td>RID</td>
<td>Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)</td>
</tr>
<tr>
<td>STEL</td>
<td>short-term exposure limit</td>
</tr>
<tr>
<td>TWA</td>
<td>time-weighted average</td>
</tr>
<tr>
<td>vPvB</td>
<td>very Persistent and very Bioaccumulative</td>
</tr>
</tbody>
</table>

**Key literature references and sources for data**
- Hazardous Products Regulations (HPR)
- UN Recommendations on the Transport of Dangerous Good
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- International Maritime Dangerous Goods Code (IMDG)

**List of relevant phrases (code and full text as stated in chapter 2 and 3)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>H225</td>
<td>highly flammable liquid and vapor</td>
</tr>
<tr>
<td>H301</td>
<td>toxic if swallowed</td>
</tr>
<tr>
<td>H311</td>
<td>toxic in contact with skin</td>
</tr>
<tr>
<td>H331</td>
<td>toxic if inhaled</td>
</tr>
<tr>
<td>H370</td>
<td>causes damage to organs (eye)</td>
</tr>
</tbody>
</table>

**Disclaimer**

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.