# MATERIAL SAFETY DATA SHEET
according to the Global Harmonized System

Date of issue: 02/04/2013 Version 1.0

## SECTION 1.Identification

### Product identifier

| | |
|---|---|
| Product number | 814659 |
| Product name | Dimethyl glutarate for synthesis |

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

| | |
|---|---|
| Identified uses | Chemical for synthesis |

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

| | |
|---|---|
| Company | EMD Millipore Corporation \| 290 Concord Road, Billerica, MA 01821, United States of America \| SDS Phone Support: +1-978-715-1335 \| General Inquiries: +1-978-751-4321 \| Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)<br><br>e-mail: mm_sds@merckgroup.com |
| **Emergency telephone** | 613-996-6666 CANUTEC (Canada)<br>+1-703-527-3887 CHEMTREC (International)<br>24 Hours/day; 7 Days/week |

## SECTION 2. Hazards identification

### GHS-Labeling

*Precautionary Statements*

P262 Do not get in eyes, on skin, or on clothing.

### Other hazards

None known.

## SECTION 3. Composition/information on ingredients

| | | |
|---|---|---|
| Formula | $CH_3$-OOC-$(CH_2)_3$-COO-$CH_3$ | $C_7H_{12}O_4$ (Hill) |
| CAS-No. | 1119-40-0 | |
| Molar mass | 160.16 g/mol | |
| Remarks | WHMIS hazardous composition: No ingredients are hazardous according to the CPR criteria. | |

## SECTION 4. First aid measures

### Description of first-aid measures

*Inhalation*
After inhalation: fresh air.

*Skin contact*
After skin contact: wash off with plenty of water. Remove contaminated clothing.

*Eye contact*
After eye contact: rinse out with plenty of water with the eyelid held wide open. Call in ophthalmologist if necessary.

*Ingestion*
After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

Never give anything by mouth to an unconscious person.

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

Impairment of vision

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

No information available.

## SECTION 5. Fire-fighting measures

### Extinguishing media

*Suitable extinguishing media*
Water, Carbon dioxide (CO2), 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 material, Development of hazardous combustion gases or vapors possible in the event of fire.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.

### 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*
Prevent fire extinguishing water from contaminating surface water or the ground water system.

## 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. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

### Environmental precautions
Do not empty into drains.

### 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. Chemizorb® ). Dispose of properly. Clean up affected area.

## SECTION 7. Handling and storage

### Precautions for safe handling
Observe label precautions.

### Conditions for safe storage, including any incompatibilities
Tightly closed.

Store at +15°C to +25°C (+59°F to +77°F).

## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)
Contains no substances with occupational exposure limit values.

### 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*
Change contaminated clothing. Application of skin-protective barrier cream recommended. Wash hands before breaks and at the end of workday.

*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:*
protective clothing

*Respiratory protection*
required when vapors/aerosols are generated.
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.

## SECTION 9. Physical and chemical properties

| | |
|---|---|
| Physical state | liquid |

| | |
|---|---|
| Color | colorless |
| Odor | sweet |
| Odor Threshold | No information available. |
| pH | No information available. |
| Melting point | -37 °C |
| Boiling point/boiling range | 410 - 419 °F (210 - 215 °C)<br>at 1,013 hPa |
| Flash point | 225 °F (107 °C) |
| Evaporation rate | No information available. |
| Flammability (solid, gas) | No information available. |
| Lower explosion limit | 0.9 %(V) |
| Upper explosion limit | 7.9 %(V) |
| Vapor pressure | 0.13 hPa<br>at 68 °F (20 °C) |
| Relative vapor density | No information available. |
| Relative density | 1.09 g/cm³<br>at 68 °F (20 °C) |
| Water solubility | 4.3 g/l<br>at 68 °F (20 °C) |
| Partition coefficient: n-octanol/water | log Pow: 0.62<br>(experimental)<br>Bioaccumulation is not expected (log Pow <1). (Lit.) |
| Autoignition temperature | No information available. |
| Decomposition temperature | No information available. |
| Viscosity, dynamic | No information available. |
| Explosive properties | No information available. |
| Ignition temperature | 689 °F (365 °C) |
| Viscosity, kinematic | 2.5 mm²/s<br>at 77 °F (25 °C) |

## SECTION 10. Stability and reactivity

### Reactivity

Forms explosive mixtures with air on intense heating.

### Chemical stability

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

### Possibility of hazardous reactions

Violent reactions possible with:

alkalines, Strong oxidizing agents, acids

### Conditions to avoid

Strong heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

### Incompatible materials

no information available

### Hazardous decomposition products

no information available

## SECTION 11. Toxicological information

### Information on toxicological effects

*Likely route of exposure*
Inhalation, Eye contact, Skin contact

*Acute oral toxicity*
LD50 rat: 8,191 mg/kg (External MSDS)

*Acute dermal toxicity*
LD50 rabbit: > 2,250 mg/kg
(External MSDS)

*Eye irritation*
Result: slight irritation
(External MSDS)

*Sensitization*
guinea pig
Result: negative
(IUCLID)

*Genotoxicity in vivo*
Mutagenicity (mammal cell test): micronucleus.
mouse
Result: negative
Method: OECD Test Guideline 475

*Genotoxicity in vitro*
Ames test
Result: negative
(IUCLID)

Mutagenicity (mammal cell test):
Result: positive
Method: OECD Test Guideline 473

*Specific target organ systemic toxicity - single exposure*
The substance or mixture is not classified as specific target organ toxicant, single exposure.

*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**
Handle in accordance with good industrial hygiene and safety practice.

## SECTION 12. Ecological information

**Ecotoxicity**

*Toxicity to fish*
LC50 Pimephales promelas (fathead minnow): 18 - 24 mg/l; 96 h (External MSDS)

*Toxicity to daphnia and other aquatic invertebrates*
EC50 Daphnia: 112 - 150 mg/l; 48 h (External MSDS)

*Toxicity to bacteria*
EC10 Pseudomonas putida: 62.5 mg/l; 18 h (IUCLID)

**Persistence and degradability**

*Biodegradability*
98 %; 28 d
OECD Test Guideline 301C
Readily biodegradable.

### Bioaccumulative potential

*Partition coefficient: n-octanol/water*
log Pow: 0.62
(experimental)
Bioaccumulation is not expected (log Pow <1). (Lit.)

### Mobility in soil

No information available.

### Other adverse effects

*Additional ecological information*
Discharge into the environment must be avoided.

## 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.

## SECTION 14. Transport information

### Land transport (DOT)

Not classified as dangerous in the meaning of transport regulations.

### Air transport (IATA)

Not classified as dangerous in the meaning of transport regulations.

### Sea transport (IMDG)

Not classified as dangerous in the meaning of transport regulations.

## SECTION 15. Regulatory information

### United States of America

### Canada

#### WHMIS Classification

Not controlled under WHIMS (Canada).

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

### Notification status

| | |
|---|---|
| TSCA: | On TSCA Inventory |
| DSL: | All components of this product are on the Canadian DSL. |

## SECTION 16. Other information

**Training advice**
Provide adequate information, instruction and training for operators.

**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.

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