

## Safety Data Sheet acc. to OSHA HCS

Printing date 01/28/2022

Revision date 01/28/2022

### 1 Identification

- **Product identifier**
- **Trade name: 2-Hydroxy Methyl Ester Mixture**
- **Article number:** M1722
- **Application of the substance / the mixture**  
This product is for research use - Not for human or veterinary diagnostic or therapeutic use.
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Matreya LLC  
2178 High Tech Rd.  
State College, PA 16803  
USA
- **Information department:** Product safety department
- **Emergency telephone number:**  
During normal opening times: +1 (734) 971-3335  
US/CANADA: 800-424-9300  
Outside US/CANADA: 703-741-5970

### 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS06 Skull and crossbones

Acute Tox. 2 H310 Fatal in contact with skin.

Acute Tox. 3 H331 Toxic if inhaled.



GHS08 Health hazard

Carc. 1A H350 May cause cancer.

Repr. 2 H361 Suspected of damaging fertility or the unborn child.

STOT RE 1 H372 Causes damage to the central nervous system, the kidneys, the liver and the respiratory system through prolonged or repeated exposure.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Skin Irrit. 2 H315 Causes skin irritation.

(Contd. on page 2)

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 01/28/2022

Revision date 01/28/2022

**Trade name: 2-Hydroxy Methyl Ester Mixture**

(Contd. from page 1)

Eye Irrit. 2A H319 Causes serious eye irritation.

· **Label elements**

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS06 GHS07 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**

Chloroform  
ethanol

· **Hazard statements**

H302 Harmful if swallowed.  
H310 Fatal in contact with skin.  
H331 Toxic if inhaled.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H350 May cause cancer.  
H361 Suspected of damaging fertility or the unborn child.  
H372 Causes damage to the central nervous system, the kidneys, the liver and the respiratory system through prolonged or repeated exposure.

· **Precautionary statements**

P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P260 Do not breathe dust/fume/gas/mist/vapors/spray.  
P262 Do not get in eyes, on skin, or on clothing.  
P264 Wash thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.  
P302+P352 If on skin: Wash with plenty of water.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
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/doctor.  
P308+P313 IF exposed or concerned: Get medical advice/attention.  
P321 Specific treatment (see on this label).  
P314 Get medical advice/attention if you feel unwell.  
P330 Rinse mouth.  
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.  
P332+P313 If skin irritation occurs: Get medical advice/attention.  
P337+P313 If eye irritation persists: Get medical advice/attention.  
P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 3)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/28/2022

Revision date 01/28/2022

Trade name: 2-Hydroxy Methyl Ester Mixture

(Contd. from page 2)

- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 3  
Fire = 0  
Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = \*3  
Fire = 0  
Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

## 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

### · Dangerous components:

CAS: 67-66-3 RTECS: FS9100000	Chloroform	98.79%
CAS: 64-17-5 RTECS: KQ6300000	ethanol	0.53%

### · Other ingredients

16742-51-1	2-Hydroxyhexadecanoic acid methyl ester	0.1348%
56009-40-6	2-Hydroxytetradecanoic acid methyl ester	0.1348%
2420-35-1	2-Hydroxystearic acid methyl ester	0.1011%
16742-49-7	2-hydroxy Arachidic Acid methyl ester	0.1011%
2433-95-6	2-hydroxy Lignoceric Acid methyl ester	0.0674%
13980-17-1	2-hydroxy Docosanoic Acid methyl ester	0.0674%
118745-41-8	2-hydroxy Tricosanoic Acid methyl ester	0.0674%

## 4 First-aid measures

- **Description of first aid measures**
- **General information:**  
Immediately remove any clothing soiled by the product.  
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.  
Remove breathing apparatus only after contaminated clothing have been completely removed.  
In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:**  
Supply fresh air or oxygen; call for doctor.  
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.

(Contd. on page 4)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/28/2022

Revision date 01/28/2022

**Trade name: 2-Hydroxy Methyl Ester Mixture**

(Contd. from page 3)

- **After eye contact:**  
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** Immediately call a doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**  
May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.  
No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

## 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
Use fire fighting measures that suit the environment.  
A solid water stream may be inefficient.
- **Special hazards arising from the substance or mixture**  
67-56-1 During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Mount respiratory protective device.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

· **PAC-1:**

67-66-3	Chloroform	2 ppm
64-17-5	ethanol	1,800 ppm

· **PAC-2:**

67-66-3	Chloroform	64 ppm
64-17-5	ethanol	3300* ppm

· **PAC-3:**

67-66-3	Chloroform	3,200 ppm
64-17-5	ethanol	15000* ppm

-US

(Contd. on page 5)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/28/2022

Revision date 01/28/2022

Trade name: 2-Hydroxy Methyl Ester Mixture

(Contd. from page 4)

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Open and handle receptacle with care.  
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**  
Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

### 67-66-3 Chloroform

PEL	Ceiling limit value: 240 mg/m <sup>3</sup> , 50 ppm
REL	Short-term value: 9.78* mg/m <sup>3</sup> , 2* ppm *60-min; See Pocket Guide App. A
TLV	Long-term value: 10 ppm A3

### 64-17-5 ethanol

PEL	Long-term value: 1900 mg/m <sup>3</sup> , 1000 ppm
REL	Long-term value: 1900 mg/m <sup>3</sup> , 1000 ppm
TLV	Short-term value: 1000 ppm A3

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing.  
Wash hands before breaks and at the end of work.  
Store protective clothing separately.  
Avoid contact with the eyes and skin.
- **Breathing equipment:**  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves

(Contd. on page 6)

US

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 01/28/2022

Revision date 01/28/2022

### Trade name: 2-Hydroxy Methyl Ester Mixture

(Contd. from page 5)

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**

Safety glasses



Tightly sealed goggles

## 9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form:

Liquid

Color:

Colorless

- **Odor:**

Pleasant

- **Odor threshold:**

Not determined.

- **Formulation**

A 10 mg/ml liquid in chloroform

- **pH-value:**

Not determined.

- **Change in condition**

**Melting point/Melting range:**

-63 °C (-81.4 °F)

**Boiling point/Boiling range:**

62 °C (143.6 °F)

- **Flash point:**

Not applicable.

- **Flammability (solid, gaseous):**

Not applicable.

- **Ignition temperature:**

982 °C (1,799.6 °F)

- **Decomposition temperature:**

Not determined.

- **Auto igniting:**

Product is not selfigniting.

- **Danger of explosion:**

Product does not present an explosion hazard.

- **Explosion limits:**

**Lower:**

Not determined.

**Upper:**

Not determined.

- **Vapor pressure at 20 °C (68 °F):**

210 hPa (157.5 mm Hg)

- **Density at 20 °C (68 °F):**

1.47988 g/cm<sup>3</sup> (12.3496 lbs/gal)

- **Relative density**

Not determined.

(Contd. on page 7)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/28/2022

Revision date 01/28/2022

Trade name: 2-Hydroxy Methyl Ester Mixture

(Contd. from page 6)

· <b>Vapor density</b>	Not determined.
· <b>Evaporation rate</b>	Not determined.
· <b>Solubility in / Miscibility with Water at 20 °C (68 °F):</b>	8 g/l
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
<b>Dynamic at 20 °C (68 °F):</b>	0.56 mPas
<b>Kinematic:</b>	Not determined.
<b>SOLUBILITY</b>	chloroform
· <b>Solvent content:</b>	
<b>Organic solvents:</b>	0.5 %
<b>VOC content:</b>	0.53 %
	5.3 g/l / 0.04 lb/gal
<b>Solids content:</b>	0.7 %
· <b>Other information</b>	No further relevant information available.

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**  
Strong oxidizers & caustics; chemically active metals: aluminum, magnesium powder, sodium, potassium
- **Hazardous decomposition products:**  
Toxic gases and vapors such as hydrogen chloride, chlorine, phosgene and carbon monoxide

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

### ATE (Acute Toxicity Estimate)

Oral	LD50	304 mg/kg (rat)
Dermal	LD50	75.9 mg/kg (rat)
Inhalative	LC50/4 h	3.04 mg/l

### 67-66-3 Chloroform

Oral	LDLO	2,514 mg/kg (man)
	LD50	300 mg/kg (rat)
Dermal	LD50	>20 g/kg (rabbit)
	LD50	75 mg/kg (rat)
Inhalative	LC50	47,702 mg/m <sup>3</sup> /4h (rat)

(Contd. on page 8)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/28/2022

Revision date 01/28/2022

**Trade name: 2-Hydroxy Methyl Ester Mixture**

(Contd. from page 7)

Irritation of skin Irritation of eyes	TCLO	5,000 mg/m <sup>3</sup> /7m (hmn)	
	Irritation	10 mg/24h (rabbit)	
	Irritation	20 mg/24h (rabbit)	
	Intraperitoneal LD50	623 mg/kg (mouse)	
<b>64-17-5 ethanol</b>			
Oral	TDLO	1.14 ml/kg (man)	
	LD50	7,060 mg/kg (rat)	
Dermal	TDLO	650 (man)	
	LD50	40,000 mg/kg (rat)	
Inhalative	LC50/4 h	5,900 mg/m <sup>3</sup> (rat)	
	LC50	20,000 mg/m <sup>3</sup> /10h (rat)	
	TCLO	1,800 mg/m <sup>3</sup> /30m (hmn)	
	LCLO	29,300 mg/m <sup>3</sup> /7h (mouse)	
	TCLO	1,800 (hmn)	
	LC50	10 h - 20,000 mg/m <sup>3</sup> (rat)	
	LD50 Inhalation TCLO	1,800 mg/m <sup>3</sup> /30m (hmn)	
	LC50/4 h	20,000 mg/l (rat)	
	Irritation of skin	Irritation	20 mg/24h (rabbit)
		TDLO	1,800 mg/kg (wmn)
Irritation of eyes	Irritation	500 mg/24h (rabbit)	
	Intraperitoneal LD50	280 mg/kg (rat)	
	Data	500 mg/24h (rabbit)	

- **Primary irritant effect:**

- **on the skin:** Irritant to skin and mucous membranes.

- **on the eye:** Irritating effect.

- **Sensitization:** No sensitizing effects known.

- **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Toxic

Harmful

Irritant

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

67-66-3	Chloroform	2B
64-17-5	ethanol	1

- **NTP (National Toxicology Program)**

67-66-3	Chloroform	R
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- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

## 12 Ecological information

- **Toxicity**

- **Aquatic toxicity:** No further relevant information available.

- **Persistence and degradability** No further relevant information available.

(Contd. on page 9)



# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/28/2022

Revision date 01/28/2022

Trade name: 2-Hydroxy Methyl Ester Mixture

(Contd. from page 8)

- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 3 (Self-assessment): extremely hazardous for water  
Do not allow product to reach ground water, water course or sewage system, even in small quantities.  
Danger to drinking water if even extremely small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

## 14 Transport information

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>· <b>UN-Number</b></li> <li>· <b>DOT, IMDG, IATA</b></li> </ul>   | UN2810   |
| <ul style="list-style-type: none"> <li>· <b>UN proper shipping name</b></li> <li>· <b>DOT</b></li> <li>· <b>IMDG</b></li> <li>· <b>IATA</b></li> </ul> | Toxic, liquids, organic, n.o.s. (Chloroform)<br>TOXIC LIQUID, ORGANIC, N.O.S. (CHLOROFORM)<br>Toxic liquid, organic, n.o.s. (CHLOROFORM) |
| <ul style="list-style-type: none"> <li>· <b>Transport hazard class(es)</b></li> <li>· <b>DOT</b></li> </ul>  |  |
| <ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>   | 6.1 Toxic substances<br>6.1  |
| <ul style="list-style-type: none"> <li>· <b>IMDG, IATA</b></li> </ul>  |  |
| <ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>   | 6.1 Toxic substances<br>6.1  |

(Contd. on page 10)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/28/2022

Revision date 01/28/2022

Trade name: 2-Hydroxy Methyl Ester Mixture

(Contd. from page 9)

· Packing group · DOT, IMDG, IATA	II
· Environmental hazards:	Not applicable.
· Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Segregation groups · Stowage Category · Stowage Code	Warning: Toxic substances 60 F-A,S-A Liquid halogenated hydrocarbons B SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information: · DOT · Quantity limitations	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	100 ml Code: E4 Maximum net quantity per inner packaging: 1 ml Maximum net quantity per outer packaging: 500 ml
· IATA · Remarks:	When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.
· UN "Model Regulation":	UN 2810 TOXIC LIQUID, ORGANIC, N.O.S. (CHLOROFORM), 6.1, II

## 15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

### · Section 355 (extremely hazardous substances):

67-66-3	Chloroform
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### · Section 313 (Specific toxic chemical listings):

67-66-3	Chloroform
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### · TSCA (Toxic Substances Control Act):

67-66-3	Chloroform	ACTIVE
64-17-5	ethanol	ACTIVE

### · Hazardous Air Pollutants

67-66-3	Chloroform
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(Contd. on page 11)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/28/2022

Revision date 01/28/2022

Trade name: 2-Hydroxy Methyl Ester Mixture

(Contd. from page 10)

- **Proposition 65**

- **Chemicals known to cause cancer:**

67-66-3	Chloroform
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- **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.	
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- **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.	
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- **Chemicals known to cause developmental toxicity:**

67-66-3	Chloroform
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64-17-5	ethanol
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- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

67-66-3	Chloroform	B2, L, NL
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- **TLV (Threshold Limit Value)**

67-66-3	Chloroform	A3
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64-17-5	ethanol	A3
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- **NIOSH-Ca (National Institute for Occupational Safety and Health)**

67-66-3	Chloroform
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- **National regulations:**

- **Information about limitation of use:**

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

All chemicals may pose unknown hazards and should be used with caution. This SDS applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. Matreya LLC assumes no responsibility for incidental or consequential damages, including lost profits, arising from the use of these data. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Matreya LLC assumes no responsibility for the completeness or accuracy of the information contained herein.

- **Department issuing SDS:** Environment protection department.

- **Contact:** -

- **Date of preparation / last revision** 01/28/2022 / -

- **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

(Contd. on page 12)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/28/2022

Revision date 01/28/2022

**Trade name: 2-Hydroxy Methyl Ester Mixture**

(Contd. from page 11)

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety &amp; Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute Tox. 4: Acute toxicity – Category 4

Acute Tox. 2: Acute toxicity – Category 2

Acute Tox. 3: Acute toxicity – Category 3

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

Carc. 1A: Carcinogenicity – Category 1A

Repr. 2: Reproductive toxicity – Category 2

STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

· **\* Data compared to the previous version altered.**

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