SAFETY DATA SHEET
MIRAMER M340E
Commission Regulation (EU) No 2015/830 of 28 May 2015.

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

1.1. Product identifier

Product name MIRAMER M340E

REACH registration number 01-2119490003-49-XXXX

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

Identified uses Resins of Coating.

1.3. Details of the supplier of the safety data sheet

Supplier
Miwon Europe GmbH
Zeppelinstraße 26
D-47638 Straelen
Germany
Tel: + 49-(0)2834-944671-0
Fax: +49-(0)2834- 944671-99
sales.eu@mwc.co.kr / www.miramer.com

Manufacturer
Miwon Specialty Chemical Co., Ltd.
167, Wanjusandan 1-ro, Bongdong-eup,
Wanju-gun, Jeollabuk-do
Korea
Tel: +82-63-260-1500
Fax: +82-63-261-6734
miramer@mwc.co.kr / www.miramer.com

1.4. Emergency telephone number

Emergency telephone +49-(0)2834- 944671-0, This phone number is available only during office hours.

National emergency telephone number +49 551 19240 GIZ-Nord, Goettingen, Germany

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards Not Classified

Health hazards Acute Tox. 4 - H302 Skin Irrit. 2 - H315 Eye Dam. 1 - H318 Skin Sens. 1 - H317

Environmental hazards Aquatic Chronic 2 - H411

2.2. Label elements

Pictogram

MIRAMER M340E

Signal word	Danger
Hazard statements	H302 Harmful if swallowed. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H411 Toxic to aquatic life with long lasting effects.
Precautionary statements	P261 Avoid breathing vapour/ spray. P264 Wash contaminated skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P273 Avoid release to the environment. P321 Specific treatment (see medical advice on this label). P501 Dispose of contents/ container in accordance with national regulations.
Contains	2-Propenoic acid, reaction products with pentaerythritol
Supplementary precautionary statements	P272 Contaminated work clothing should not be allowed out of the workplace. 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. 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. P330 Rinse mouth. P332+P313 If skin irritation occurs: Get medical advice/ attention. P333+P313 If skin irritation or rash occurs: Get medical advice/ attention. P362+P364 Take off contaminated clothing and wash it before reuse. P391 Collect spillage.

2.3. Other hazards

SECTION 3: Composition/information on ingredients

3.2. Mixtures

2-Propenoic acid, reaction products with pentaerythritol **>99%**

CAS number: 1245638-61-2 EC number: 629-850-6 REACH registration number: 01-2119490003-49-xxxx

Classification
Acute Tox. 4 - H302
Skin Irrit. 2 - H315
Eye Dam. 1 - H318
Skin Sens. 1 - H317
Aquatic Chronic 2 - H411

MIRAMER M340E

TOLUENE	<0.1%
CAS number: 108-88-3	EC number: 203-625-9

Classification
Flam. Liq. 2 - H225
Skin Irrit. 2 - H315
Repr. 2 - H361d
STOT SE 3 - H336
STOT RE 2 - H373
Asp. Tox. 1 - H304

The full text for all hazard statements is displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. For breathing difficulties, oxygen may be necessary. Get medical attention if any discomfort continues.

Ingestion Rinse mouth thoroughly with water. Give plenty of water to drink. Keep affected person under observation. Get medical attention if any discomfort continues. Show this Safety Data Sheet to the medical personnel.

Skin contact Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if irritation persists after washing.

Eye contact Continue to rinse for at least 15 minutes and get medical attention.

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

Skin contact May cause an allergic skin reaction.

Eye contact Causes serious eye irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products Thermal decomposition or combustion products may include the following substances: Oxides of carbon.

5.3. Advice for firefighters

Protective actions during firefighting No action shall be taken without appropriate training or involving any personal risk.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Wear suitable protective equipment, including gloves, goggles/face shield, respirator, boots, clothing or apron, as appropriate. Use suitable respiratory protection if ventilation is inadequate.

6.2. Environmental precautions

Environmental precautions Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up No smoking, sparks, flames or other sources of ignition near spillage. Absorb spillage with sand or other inert absorbent. Collect and place in suitable waste disposal containers and seal securely. Containers with collected spillage must be properly labelled with correct contents and hazard symbol. Collect and dispose of spillage as indicated in Section 13.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Avoid contact with skin and eyes. Wash contaminated skin thoroughly after handling. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. Keep away from heat, sparks and open flame. Use mechanical ventilation if there is a risk of handling causing formation of airborne dust. Handle and open container with care. Wear suitable protective equipment for prolonged exposure and/or high concentrations of vapours, spray or mist.

Advice on general occupational hygiene Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry and cool place. Store at temperatures between 5°C and 30°C. Store at temperatures not exceeding 40°C. Protect from freezing and direct sunlight. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

TOLUENE

Long-term exposure limit (8-hour TWA): WEL 50 ppm 191 mg/m³
Short-term exposure limit (15-minute): WEL, OSHA 100 ppm 384 mg/m³
Long-term exposure limit (8-hour TWA): OSHA 50 ppm 192 mg/m³
WEL = Workplace Exposure Limit
OSHA = Occupational Safety and Health Administration.

2-Propenoic acid, reaction products with pentaerythritol (CAS: 1245638-61-2)

Ingredient comments No exposure limits known for ingredient(s).

8.2. Exposure controls

Protective equipment

Appropriate engineering controls	Provide adequate general and local exhaust ventilation. Observe any occupational exposure limits for the product or ingredients.
Eye/face protection	Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. The following protection should be worn: Chemical splash goggles. Wear tight-fitting, chemical splash goggles or face shield.
Hand protection	Wear protective gloves. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. For exposure up to 8 hours, wear gloves made of the following material: Nitrile rubber.
Other skin and body protection	Avoid contact with skin. Wear appropriate clothing to prevent any possibility of skin contact.
Hygiene measures	Wash contaminated skin thoroughly after handling. Rinse immediately contaminated clothing and skin with plenty of water before removing clothes. Take off immediately all contaminated clothing and wash it before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product.
Respiratory protection	If ventilation is inadequate, suitable respiratory protection must be worn. Wear a full facepiece respirator fitted with the following cartridge: Organic vapour filter. High-efficiency particulate filter.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Odour	Odourless.
pH	pH (concentrated solution): 6~8
Melting point	Not determined.
Initial boiling point and range	316°C
Flash point	190°C
Evaporation rate	Not determined.
Flammability (solid, gas)	Not determined.
Upper/lower flammability or explosive limits	Not determined.
Vapour density	Not determined.
Relative density	1.18 @ 25°C
Partition coefficient	log Pow: 1.69
Auto-ignition temperature	Not determined.
Decomposition Temperature	Not determined.
Viscosity	1000~1800 cP @ 25°C

9.2. Other information

Molecular weight 289.29

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity No information available.

10.2. Chemical stability

Stability Stable at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions May polymerise.

10.4. Conditions to avoid

Conditions to avoid Avoid heat, flames and other sources of ignition. Avoid exposure to high temperatures or direct sunlight. Avoid contact with strong oxidising agents.

10.5. Incompatible materials

Materials to avoid Avoid contact with radical forming initiators, peroxides, strong alkalies or reactive metals to prevent exothermic polymerization.

10.6. Hazardous decomposition products

Hazardous decomposition products Oxides of carbon.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

ATE oral (mg/kg) 500.5

Toxicological information on ingredients.

2-Propenoic acid, reaction products with pentaerythritol

Acute toxicity - oral

ATE oral (mg/kg) 500.0

Acute toxicity - dermal

Notes (dermal LD_{50}) LD_{50} >2000 mg/kg, Dermal, Rabbit

Acute toxicity - inhalation

Notes (inhalation LC_{50}) No information available.

Skin corrosion/irritation

Skin corrosion/irritation May cause skin irritation.

Serious eye damage/irritation

Serious eye damage/irritation May cause severe eye irritation.

Skin sensitisation

Skin sensitisation Not sensitising.

Germ cell mutagenicity

Genotoxicity - in vitro	Gene mutation: Negative.
Genotoxicity - in vivo	Negative.

Carcinogenicity

Carcinogenicity	NOAEL 1.5 mg/kg, Dermal, Mouse

Reproductive toxicity

Reproductive toxicity - fertility	Fertility: - NOAEL 200 mg/kg/day, Oral, Rat P
Reproductive toxicity - development	Embryotoxicity: - NOAEL: 75 mg/kg/day, Oral, Rabbit

Specific target organ toxicity - repeated exposure

STOT - repeated exposure	NOAEL 25 mg/kg/day, Oral, Rat

SECTION 12: Ecological Information

12.1. Toxicity

Ecological information on ingredients.

2-Propenoic acid, reaction products with pentaerythritol

Acute toxicity - fish	LC_{50}, 96 hours: 3.2mg/L mg/l, Algae
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 13mg/L mg/l, Daphnia magna
Acute toxicity - aquatic plants	NOEC, 96 hours: 0.31 mg/l, Pseudokirchneriella subcapitata
Acute toxicity - microorganisms	EC_{50}, 3 hours: 100 mg/l, Activated sludge

12.2. Persistence and degradability

Ecological information on ingredients.

2-Propenoic acid, reaction products with pentaerythritol

Persistence and degradability	The product is not readily biodegradable.

12.3. Bioaccumulative potential

Partition coefficient log Pow: 1.69

Ecological information on ingredients.

2-Propenoic acid, reaction products with pentaerythritol

Bioaccumulative potential	No data available on bioaccumulation.
Partition coefficient	log Pow: 1.69

12.4. Mobility in soil

Ecological information on ingredients.

2-Propenoic acid, reaction products with pentaerythritol

Adsorption/desorption coefficient	Not determined.

12.5. Results of PBT and vPvB assessment

Ecological information on ingredients.

2-Propenoic acid, reaction products with pentaerythritol

Results of PBT and vPvB assessment	This substance is not classified as PBT or vPvB according to current EU criteria.

12.6. Other adverse effects

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information	Dispose of waste product or used containers in accordance with local regulations

SECTION 14: Transport information

14.1. UN number

UN No. (ADR/RID)	3082
UN No. (IMDG)	3082
UN No. (ICAO)	3082
UN No. (ADN)	3082

14.2. UN proper shipping name

Proper shipping name (ADR/RID)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains 2-Propenoic acid, reaction products with pentaerythritol)
Proper shipping name (IMDG)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains 2-Propenoic acid, reaction products with pentaerythritol)
Proper shipping name (ICAO)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains 2-Propenoic acid, reaction products with pentaerythritol)
Proper shipping name (ADN)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains 2-Propenoic acid, reaction products with pentaerythritol)

14.3. Transport hazard class(es)

ADR/RID class	9
ADR/RID classification code	M6
ADR/RID label	9
IMDG class	9
ICAO class/division	9
ADN class	9

Transport labels

14.4. Packing group

ADR/RID packing group	III
IMDG packing group	III
ADN packing group	III
ICAO packing group	III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

14.6. Special precautions for user

EmS	F-A, S-F
ADR transport category	3
Emergency Action Code	•3Z
Hazard Identification Number (ADR/RID)	90
Tunnel restriction code	(E)

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU legislation Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

Inventories

EU - EINECS/ELINCS
EINECS

Canada - DSL/NDSL
DSL

US - TSCA
Yes

Australia - AICS
Yes

Japan - MITI
Yes

Korea - KECI
Yes

MIRAMER M340E

China - IECSC
Yes

Philippines – PICCS
Yes

New Zealand - NZIOC
Yes

Taiwan - NECI
Yes

SECTION 16: Other information

Key literature references and sources for data	http://esis.jrc.ec.europa.eu , http://echa.europa.eu
Issued by	Miwon Specialty Chemical Co.,Ltd.
Revision date	26/04/2017
Revision	2
SDS number	EU-SDS-391
SDS status	Approved.
Hazard statements in full	H225 Highly flammable liquid and vapour. H302 Harmful if swallowed. H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H336 May cause drowsiness or dizziness. H361d Suspected of damaging the unborn child. H373 May cause damage to organs through prolonged or repeated exposure. H411 Toxic to aquatic life with long lasting effects.