SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

OPTIMOLD II MONOCOMPOSANT

Former date 12-Dec-2014 **Revision Date** 17-Feb-2016 **Version:** 1.1

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

1.1. Product identifier

Product name	**OPTIMOLD II MONOCOMPOSANT**
Chemical Name	**Unsaturated polyester resin**
Pure substance/mixture	Mixture

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

Identified uses	Resins for composites. Contact us before using for food contact application.

1.3. Details of the supplier of the safety data sheet

Supplier

Polynt Composites France S.A.
Route d'Arras CS 50019
62320 Drocourt
France
Tel : +33 3 21 74 84 00
Fax : +33 3 21 49 55 84

For further information, please contact

E-mail address	Rccp.SDSmanagement@polynt.com
Internet Address	http://www.polynt.com

1.4. Emergency telephone number

This telephone number is available 24 hours per day, 7 days per week.	
Europe, America, Middle East, Africa (European language countries) :	+44 (0) 1235 239 670
Middle East/Africa (Arabic speaking countries) :	+44 (0) 1235 239 671
Asia Pacific :	+65 3158 1074

Poison Information Centre telephone number

European emergency phone number : 112
UK : National Poisons Emergency Number : 0845 4647
Ireland : National Poisons Information Centre (NPIC)Telephone Healthcare Professionals : +353 (01) 809 2566. (24 hour service)Telephone Members of Public : +353 (01) 809 2166. (8.00 a.m. to 10.00 p.m. 7 days a week)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification of the substance or mixture - GHS/CLP (n° 1272/2008)

Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Skin Sensitization	Category 1
Reproductive Toxicity	Category 2

Specific Target Organ Toxicity (Single Exposure)	Category 3
Specific target organ toxicity - repeated exposure	Category 1
Chronic Aquatic Toxicity	Category 3
Flammable liquids	Category 3

2.2. Label elements

Contains 2-hydroxyethyl methacrylate, Methyl methacrylate, Styrene

Signal word **Danger**

Hazard statements
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H361d - Suspected of damaging the unborn child
H372 - Causes damage to organs through prolonged or repeated exposure if inhaled
H412 - Harmful to aquatic life with long lasting effects

Physical hazards
H226 - Flammable liquid and vapour

Precautionary statements
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P243 - Take precautionary measures against static discharge
P260 - Do not breathe vapour
P273 - Avoid release to the environment
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
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
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

Chemical Name	EC-No	REACH Registration Number	CAS-No	Weight percent	GHS Classification
Aluminum hydroxide	244-492-7	01-2119529246-39	21645-51-2	~ 36	-

Styrene	202-851-5	01-2119457861-32	100-42-5	~ 26	Flam. Liq. 3 (H226) Repr. 2 (H361d) Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Asp. Tox. 1 (H304) STOT SE 3 (H335) STOT RE 1 (H372) Aquatic Chronic 3 (H412)
Talc	238-877-9	No data available	14807-96-6	~ 2	-
2-hydroxyethyl methacrylate	212-782-2	01-2119490169-29	868-77-9	~ 2	Eye Irrit. 2 (H319) Skin Sens. 1 (H317)
Methyl methacrylate	201-297-1	01-2119452498-28	80-62-6	~ 2	Flam. Liq. 2 (H225) STOT SE 3 (H335) Skin Irrit. 2 (H315) Skin Sens. 1 (H317)
Pyrogenic micro-dispersed silica, synthetic X-ray amorphous silicon dioxide (SiO2)	231-545-4	01-2119379499-16	112945-52-5	~ 0.4	-

For the full text of the H-Statements mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice
Show this safety data sheet to the doctor in attendance
Do not breathe dust/fume/gas/mist/vapours/spray

Eye Contact
Rinse thoroughly with plenty of water, also under the eyelids.
Keep eye wide open while rinsing.
If symptoms persist, call a physician

Skin contact
Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes
If skin irritation persists, call a physician

Inhalation
Move to fresh air
If not breathing, give artificial respiration
Consult a physician

Ingestion
Do NOT induce vomiting
Rinse mouth.
Consult a physician

Protection of first-aiders
Use personal protective equipment
See section 8 for more information

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

Eye Contact
Irritating to eyes

Skin contact
Irritating to skin
May cause sensitisation by skin contact

Inhalation
Harmful: danger of serious damage to health by prolonged exposure through inhalation
Irritating to respiratory system

Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

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

Notes to physician No information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Dry chemical, Foam, Carbon dioxide (CO_2), (closed systems)

Extinguishing Media Which Must not be Used for Safety Reasons Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases Vapours may form explosive mixtures with air. Most vapours are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks)
Heating or fire can release toxic gas : Carbon monoxide

5.3. Advice for firefighters

Special protective equipment for fire-fighters Wear self-contained breathing apparatus and protective suit.

Other information Cool containers / tanks with water spray.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Personal precautions Remove all sources of ignition
Heat, flames and sparks.
Take precautionary measures against static charges.
Ensure adequate ventilation
Use personal protective equipment

For emergency responders

Avoid breathing vapours or mists In the event of fire and/or explosion do not breathe fumes. Use personal protective equipment

6.2. Environmental precautions

Environmental precautions The product should not be allowed to enter drains, water courses or the soil.
Do not flush into surface water or sanitary sewer system

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13)
Use clean non-sparking tools to collect absorbed material

6.4. Reference to other sections

See section 8 for more information
See Section 12 for additional Ecological Information

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling Avoid static electricity build up with connection to earth
Use only in area provided with appropriate exhaust ventilation
In case of insufficient ventilation, wear suitable respiratory equipment
For personal protection see section 8

Prevention of fire and explosion Keep away from open flames, hot surfaces and sources of ignition Do not use compressed air for filling, discharging or handling. Empty containers may contain flammable or explosive vapours

Hygiene measures When using, do not eat, drink or smoke Provide regular cleaning of equipment, work area and clothing Wash hands before breaks and at the end of workday.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions Keep in a dry, cool and well-ventilated place.
Keep at temperature not exceeding 30°C
Keep away from heat and sources of ignition.

Materials to avoid Strong oxidizing agents, Peroxides, Reducing agents

Packageing material metallic GRP Tanks (Reinforced Glass Polyester)

Unsuitable materials for containers Aluminium copper Copper alloys

7.3. Specific end use(s)

Specific use(s) No information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure limits

Chemical Name	European Union	ACGIH OEL (Ceiling)	The United Kingdom	Ireland
Aluminum hydroxide 21645-51-2			STEL 30 mg/m³ STEL 12 mg/m³ TWA 10 mg/m³ TWA 4 mg/m³	We are not aware of any national exposure limit.
Styrene 100-42-5	-	TLV-8h TWA: 20 ppm - 85 mg/m³ TLV-15min STEL: 40 ppm - 170 mg/m³	STEL 250 ppm STEL 1080 mg/m³ TWA 100 ppm TWA 430 mg/m³	TWA 20 ppm TWA 85 mg/m³ STEL 40 ppm STEL 170 mg/m³
Talc 14807-96-6		TWA 2 mg/m³	STEL 3 mg/m³ TWA 1 mg/m³	TWA 10 mg/m³ TWA 0.8 mg/m³
Methyl methacrylate 80-62-6		TWA 50 ppm, STEL 100 ppm (2007)	STEL 100 ppm STEL 416 mg/m³ TWA 50 ppm TWA 208 mg/m³	TWA 50 ppm STEL 100 ppm

Special hazards arising from the substance or mixture

Biological standards

Chemical Name	European Union	The United Kingdom	Ireland

Styrene 100-42-5	-	We are not aware of any national exposure limit.	We are not aware of any national exposure limit.

Derived No Effect Level (DNEL)

Derived No Effect Level (DNEL)				
Aluminum hydroxide (21645-51-2)				
Type	DNEL oral	DNEL dermal	DNEL inhalation	Remark
Workers - Long Term - Local effect			3.59 mg/m³	
General Population - Long Term - Systemic effect	2.37 mg/kg bw/day			

Styrene (100-42-5)				
Type	DNEL oral	DNEL dermal	DNEL inhalation	Remark
Workers - Long Term - Systemic effect		406 mg/Kg bw/day	85 mg/m³	
Workers - Acute Short Term - Local effect			306 mg/m³	
Workers - Acute Short term - Systemic effect			289 mg/m³	
General Population - Acute Short Term - Local effect			182.7 mg/m³	
General Population - Acute Short Term - Systemic effect			174.2 mg/m³	
General Population - Long Term - Systemic effect	2.1 mg/Kg bw/day	343 mg/Kg bw/day	10.2 mg/m³	

2-hydroxyethyl methacrylate (868-77-9)				
Type	DNEL oral	DNEL dermal	DNEL inhalation	Remark
Workers - Long Term - Systemic effect		1.3 mg/kg bw/day	4.9 mg/m³	
General Population - Long Term - Systemic effect	0.83 mg/kg bw/day	0.83 mg/kg bw/day	2.9 mg/m³	

Methyl methacrylate (80-62-6)				
Type	DNEL oral	DNEL dermal	DNEL inhalation	Remark
Workers - Long Term - Systemic effect		13.67 mg/kg bw/day	208 mg/m³	
Workers - Long Term - Local effect		1.5 mg/cm²	208 mg/m³	
Workers - Acute Short Term - Local effect		1.5 mg/cm²		
General Population - Long Term - Systemic effect		8.2 mg/kg bw/day	74.3 mg/m³	
General Population - Long Term - Local effect		1.5 mg/cm²	104 mg/m³	
General Population - Acute Short Term - Local effect		1.5 mg/cm²		

Pyrogenic micro-dispersed silica, synthetic X-ray amorphous silicon dioxide (SiO2) (112945-52-5)				
Type	DNEL oral	DNEL dermal	DNEL inhalation	Remark
Workers - Long Term - Systemic effect			4 mg/m³	

Predicted No Effect Concentration (PNEC)

PNEC Component		
Aluminum hydroxide (21645-51-2)		
Exposure	Type	PNEC
	PNEC STP	20 mg/L

Styrene (100-42-5)		
Exposure	Type	PNEC
Fresh water	PNEC Aqua	0.028 mg/L
Marine water	PNEC Aqua	0.014 mg/L
Intermittent use/release	PNEC Aqua	0.04 mg/L
Fresh water	PNEC Sediment	0.614 mg/Kg.dw
Marine water	PNEC Sediment	0.307 mg/Kg.dw
Terrestrial Compartment	PNEC Soil	0.2 mg/Kg.dw
STP microorganisms	PNEC STP	5 mg/L

2-hydroxyethyl methacrylate (868-77-9)		
Exposure	Type	PNEC
Fresh water	PNEC Aqua	0.482 mg/L
Marine water	PNEC Aqua	0.482 mg/L
Intermittent use/release	PNEC Aqua	1 mg/L
	PNEC STP	10 mg/L
Fresh water	PNEC Sediment	3.79 mg/kg sediment dw
Marine water	PNEC Sediment	3.79 mg/kg sediment dw
	PNEC Soil	0.476 mg/kg soil dw

Methyl methacrylate (80-62-6)		
Exposure	Type	PNEC
Fresh water	PNEC Aqua	0.94 mg/L
Marine water	PNEC Aqua	0.94 mg/L
Intermittent use/release	PNEC Aqua	0.94 mg/L
Fresh water	PNEC Sediment	5.74 mg/kg sediment dw
Terrestrial Compartment	PNEC Soil	1.47 mg/kg soil dw
	PNEC STP	10 mg/L

Pyrogenic micro-dispersed silica, synthetic X-ray amorphous silicon dioxide (SiO2) (112945-52-5)		
Exposure	Type	PNEC
Secondary Poisoning	PNEC Oral	60000 mg/kg

8.2. Exposure controls

Occupational exposure controls

Engineering measures Apply technical measures to comply with the occupational exposure limits.
When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment

Personal protective equipment

General Information Use personal protective equipment.

Respiratory protection Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)
If exposure limits are likely to be exceeded / In case of insufficient ventilation wear suitable respiratory equipment :
Breathing apparatus with filter Type A (Organic gases and vapours filter conforming to EN 14387 , APF 40 < 1 hour, APF 200 > 1 hour) / Type A(2)/P3 in combination with Particulates filter conforming to EN 143 , if exposed to dust

Eye protection Safety glasses with side-shields. Do not wear contact lenses.

Skin and body protection	Antistatic boots. Protective shoes or boots. Wear fire/flame resistant/retardant clothing.
Hand protection	Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Glove material : Neoprene , Nitriles , Viton (R) or Polyvinyl alcohol Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Environmental exposure controls

Environmental exposure controls Do not allow material to contaminate ground water system.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Property	Values	Remark
Appearance	Yellowish	
Physical state	Liquid	
Particle size		no data available
Odour	Styrene	
Odour Threshold	0.15 ppm	Values related to styrene
pH		no data available
pH (as aqueous solution)		no data available
Melting point/range	- 30 °C	Values related to styrene
Freezing point		no data available
Boiling point	145 °C	Values related to styrene
Flash point	31 °C	Values related to styrene
Evapouration rate		no data available
Flammability Limits in Air		
upper	6,1 - 6,8%	Values related to styrene
lower	0,9 -1,1%	Values related to styrene
Vapour pressure	6 hPa	20°C
Vapour density	3.6	Values related to styrene
Density	1.3 g/cm3	20°C
Water solubility	Insoluble in water	
Partition coefficient: n-octanol/water	3	Values related to styrene
Autoignition temperature	490 °C	Values related to styrene
Decomposition temperature		no data available
Viscosity, kinematic	1039 mm2/s	25°C
Viscosity, dynamic	1350 mPa.s	25°C
Explosive properties		not applicable
Oxidizing properties		not applicable

9.2. Other information

Property	Values	Remark
Solubility in other solvents	Soluble in most organic solvents	

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity Product may ignite and burn at temperatures exceeding the flash point

10.2. Chemical stability

Stability Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions In use, may form flammable/explosive vapour-air mixture.

Hazardous polymerisation Polymerisation can occur.

10.4. Conditions to avoid

Conditions to avoid Heat, flames and sparks.
Exposure to light.
Take precautionary measures against static charges.

10.5. Incompatible materials

Materials to avoid Strong oxidizing agents, Peroxides, Reducing agents

10.6. Hazardous decomposition products

Hazardous decomposition products Incomplete combustion and thermolysis produces potentially toxic gases such as carbon monoxide and carbon dioxide

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

Inhalation Harmful: danger of serious damage to health by prolonged exposure through inhalation
Irritating to respiratory system

Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation	Read-across (Analogy)
Aluminum hydroxide 21645-51-2	> 2000 mg/kg bw (Rat) OECD 423		> 2.3 mg/L air (Rat, aerosol) 4h OECD 403, EPA 40 CFR 158	
Styrene 100-42-5	5000 mg/kg (Rat)	> 2000 mg/kg bw (Rat) 24h OECD 402	11.8 mg/L (Rat) 4h CSR	
2-hydroxyethyl methacrylate 868-77-9	5564 mg/kg bw (Rat) FDA	> 5000 mg/kg bw (Rabbit)		
Methyl methacrylate 80-62-6	> 5000 mg/kg bw (Rat) OECD 401	> 5000 mg/kg bw (Rabbit) OECD 402	29.8 mg/L (7093 ppm) (Rat) 4h (vapor) OECD 403	
Pyrogenic micro-dispersed silica, synthetic X-ray amorphous silicon dioxide (SiO2) 112945-52-5	> 5000 mg/kg bw (Rat) OECD 401	> 5000 mg/kg (Rabbit)	> 0.14 mg/L air (Rat) 4h (analytical) OECD 403	

Skin corrosion/irritation

Chemical Name	Skin corrosion/irritation	Read-across (Analogy)
Aluminum hydroxide 21645-51-2	No skin irritation No skin corrosion rabbit OECD 404	
Styrene 100-42-5	Irritating to skin in vivo assay rabbit	
2-hydroxyethyl methacrylate 868-77-9	No skin irritation in vivo assay rabbit	
Methyl methacrylate 80-62-6	Irritating to skin rabbit Draize Test	

Pyrogenic micro-dispersed silica, synthetic X-ray amorphous silicon dioxide (SiO2) 112945-52-5	No skin irritation rabbit OECD 404	

Serious Eye Damage/Eye Irritation

Chemical Name	Serious Eye Damage/Eye Irritation	Read-across (Analogy)
Aluminum hydroxide 21645-51-2	No eye irritation in vivo assay rabbit OECD 405	
Styrene 100-42-5	Irritating to eyes in vivo assay rabbit	
2-hydroxyethyl methacrylate 868-77-9	Irritating to eyes rabbit FDA (Food & Drug Administration)	
Methyl methacrylate 80-62-6	Mild eye irritation rabbit Draize Test	
Pyrogenic micro-dispersed silica, synthetic X-ray amorphous silicon dioxide (SiO2) 112945-52-5	No eye irritation rabbit OECD 405	

Respiratory or skin sensitisation May cause sensitisation by skin contact

Chemical Name	Respiratory or skin sensitisation	Read-across (Analogy)
Aluminum hydroxide 21645-51-2	Does not cause skin sensitization Does not cause respiratory sensitization in vivo assay guinea pig OECD 406 EPA OPPTS 870.2600	
Styrene 100-42-5	Does not cause skin sensitization Does not cause respiratory sensitization CSR	
2-hydroxyethyl methacrylate 868-77-9	May cause sensitisation by skin contact in vivo assay rabbit mouse	
Methyl methacrylate 80-62-6	May cause sensitisation by skin contact mouse OECD 429	
Pyrogenic micro-dispersed silica, synthetic X-ray amorphous silicon dioxide (SiO2) 112945-52-5	Does not cause skin sensitization Does not cause respiratory sensitization	

Mutagenic Effects

in vitro study

Chemical Name	Ames test	Read-across (Analogy)
Styrene 100-42-5	Ambiguous In vitro gene mutation study in bacteria (S. typhimurium G46, TA1530, TA 1535, TA100, TA98, TA1538, TA 1537) OECD 471	
2-hydroxyethyl methacrylate 868-77-9	negative (Escherichia coli WP2 uvrA) (S. typhimurium TA 1535, TA 1537, TA 98 and TA 100) OECD 471 OECD 472	
Methyl methacrylate 80-62-6	negative In vitro gene mutation study in bacteria OECD 471	

Pyrogenic micro-dispersed silica, synthetic X-ray amorphous silicon dioxide (SiO2) 112945-52-5	negative In vitro gene mutation study in bacteria OECD 471	

Chemical Name	In vitro Mammalian Cell Gene Mutation Test	Read-across (Analogy)
Aluminum hydroxide 21645-51-2	negative In vitro gene mutation study in mammalian cells mouse OECD 476	
Styrene 100-42-5	Ambiguous In vitro gene mutation study in mammalian cells hamster OECD 476	
2-hydroxyethyl methacrylate 868-77-9	negative In vitro gene mutation study in mammalian cells hamster OECD 476	
Pyrogenic micro-dispersed silica, synthetic X-ray amorphous silicon dioxide (SiO2) 112945-52-5	negative In vitro gene mutation study in mammalian cells OECD 476	
Chemical Name	**In vitro Mammalian Chromosome Aberration Test**	**Read-across (Analogy)**
Styrene 100-42-5	positive Chromosome aberration test in vitro OECD 473 OECD 479	
Pyrogenic micro-dispersed silica, synthetic X-ray amorphous silicon dioxide (SiO2) 112945-52-5	negative Chromosome aberration test in vitro OECD 473	

in vivo assay

Chemical Name	Unscheduled DNA Synthesis (UDS)	Read-across (Analogy)
Aluminum hydroxide 21645-51-2	negative rat OECD 474	
Styrene 100-42-5	negative mouse OECD 486 OECD 474	
2-hydroxyethyl methacrylate 868-77-9	negative rat OECD 474	
Methyl methacrylate 80-62-6	negative mouse OECD 478	
Pyrogenic micro-dispersed silica, synthetic X-ray amorphous silicon dioxide (SiO2) 112945-52-5	negative rat	

Carcinogenicity

Carcinogenicity				
Aluminum hydroxide (21645-51-2)				
Exposure routes	Method	Species	Dose	Evaluation
Inhalation	OECD TG 413	rat	LOAEC (toxicity powder) = 50 mg/m³ air NOAEC (toxicity dust) = 50 mg/m³ air	negative

Styrene (100-42-5)				
Exposure routes	Method	Species	Dose	Evaluation
Inhalation	OECD 453	rat	NOAEC systemic (carcinogenicity) >= 4.34 mg/L air (nominal)	negative

Inhalation	OECD 453	mouse	LOAEC (carcinogenicity) female/male = 0.09 - 0.18 mg/L air resp., NOAEC (carcinogenicity) male = 0.09 mg/L air	positive
Oral	No information available	rat	NOAEL (carcinogenicity) >= 2000 mg/kg bw /day	positive
Oral	No information available	mouse	LOAEL (carcinogenicity) = 150 mg/kg bw /day	positive

2-hydroxyethyl methacrylate (868-77-9)				
Exposure routes	Method	Species	Dose	Evaluation
Inhalation	OECD 451	rat	NOAEC (carcinogenicity) >= 4.1 mg/L air NOAEC (systemic toxicity) >= 2.05 mg/L air LOAEC (local toxicity) = 1.03 mg/L air	negative
Inhalation	OECD 451	mouse	NOAEC (carcinogenicity) >= 4.1 mg/L air NOAEC (systemic toxicity) >= 4.1 mg/L air LOAEC (local toxicity) = 2.05 mg/L air	negative

Methyl methacrylate (80-62-6)				
Exposure routes	Method	Species	Dose	Evaluation
Inhalation	OECD 451	mouse	NOAEC (carcinogenicity, systemic toxicity) >= 4.1 mg/L air (male/female) LOAEC (local toxicity) = 2.05 mg/L air (male/female)	negative
Inhalation	OECD 451	rat	NOAEC (carcinogenicity) >= 2.05 mg/L air (female) NOAEC (carcinogenicity) >= 4.1 mg/L air (male) NOAEC (systemic toxicity) >= 2.05 mg/L air (male/female) LOAEC (local toxicity) = 1.03 mg/L air (male/female)	negative

Pyrogenic micro-dispersed silica, synthetic X-ray amorphous silicon dioxide (SiO2) (112945-52-5)				
Exposure routes	Method	Species	Dose	Evaluation
Oral	OECD 453	rat	NOAEL = 1800 - 3200 mg/kg bw/day	negative

Reproductive toxicity

Reproductive toxicity				
Aluminum hydroxide (21645-51-2)				
Exposure routes	Method	Species	Dose	Evaluation
Oral	OECD 422	rat	NOAEL (reproductive toxicity) = 1000 mg/kg bw/day Read across with Cas N° : 1327-41-9	negative

Styrene (100-42-5)				
Exposure routes	Method	Species	Dose	Evaluation
Inhalation	No information available	rat	NOAEL/LOAEL (fertility) 60d = 100 - 200 mg/kg bw/day	positive

Oral	OECD 422	rat	NOAEL/LOAEL (fertility) 60d = 200 - 400 mg/kg bw/day	positive
Inhalation	OECD 416	rat	NOAEC (P, F1) = 0.64 mg/L air LOAEC (P, F1) = 2.13 mg/L air NOAEC (F2) = 0.21 mg/L air LOAEC (F2) = 0.64 mg/L air (70d)	negative

2-hydroxyethyl methacrylate (868-77-9)				
Exposure routes	Method	Species	Dose	Evaluation
Oral	OECD 422	rat	NOAEL (male/female) >= 1000 mg/kg bw/day	negative

Methyl methacrylate (80-62-6)				
Exposure routes	Method	Species	Dose	Evaluation
Oral	OECD 416	rat	NOAEL (general, systemic toxicity) = 50 mg/kg bw/day (male/female) NOAEL (fertility and reproductive performance) = 400 mg/kg bw/day (male/female) NOAEL (developmental toxicity) = 400 mg/kg bw/day (male/female)	negative

Pyrogenic micro-dispersed silica, synthetic X-ray amorphous silicon dioxide (SiO2) (112945-52-5)				
Exposure routes	Method	Species	Dose	Evaluation
Oral	OECD 415	rat	NOAEL = 497 mg/kg bw/day	negative

Developmental Toxicity Suspected of damaging the unborn child.

Developmental Toxicity				
Aluminum hydroxide (21645-51-2)				
Route of Exposure	Method	Species	Dose	Evaluation
Oral	OECD 414	rat	NOAEL (embryotixicity/teratogenicity) = 266 mg/kg bw/day	negative

Styrene (100-42-5)				
Route of Exposure	Method	Species	Dose	Evaluation
Inhalation	No information available	rat	NOAEC/LOAEC (maternal toxicity + developemental toxicity) >50d = 1.08 - 2.15 mg/L air	positive
Inhalation	OECD 414	rat	LOAEC (maternal toxicity) 6-15d = 1.28 mg/L air	positive
Inhalation	OECD 414	rat	NOAEC (developmental toxicity) 6-15d >= 2.56 mg/L air	negative
Inhalation	OECD 414	rabbit	NOAEC (maternal toxicity + developmental toxicity) 6-18d = 2.56 mg/L air	negative

2-hydroxyethyl methacrylate (868-77-9)				
Route of Exposure	Method	Species	Dose	Evaluation

Oral	OECD 414	rabbit	NOAEL (maternal toxicity) = 50 mg/kg bw/day NOAEL (developmental toxicity) = 450 mg/kg bw/day	negative
Inhalation	OECD 414	rat	LOEC (maternal toxicity) = 0.41 mg/L air NOAEC (fetotoxicity) >= 8.3 mg/L air NOAEC (teratogenicity) >= 8.3 mg/L air	negative
Oral	OECD 422	rat	NOAEL (maternal toxicity and teratogenicity) >= 1000 mg/kg bw/day	negative

Methyl methacrylate (80-62-6)				
Route of Exposure	Method	Species	Dose	Evaluation
Inhalation	OECD 414	rat	LOEC (maternal toxicity) = 0.41 mg/L air NOAEC (fetotoxicity) >= 8.3 mg/L air NOAEC (teratogenicity) >= 8.3 mg/L air	negative
Oral	OECD 414	rabbit	NOAEL (maternal toxicity) = 50 mg/kg bw/day NOAEL (developmental toxicity) = 450 mg/kg bw/day	negative

Pyrogenic micro-dispersed silica, synthetic X-ray amorphous silicon dioxide (SiO2) (112945-52-5)				
Route of Exposure	Method	Species	Dose	Evaluation
Oral	OECD 414	rat	NOAEL (maternal toxicity) = 1350 mg/kg bw/day NOAEL (teratogenicity) = 1350 mg/kg bw/day	negative

Specific target organ toxicity - single exposure May cause irritation of respiratory tract

Specific target organ toxicity - repeated exposure Causes damage to organs through prolonged or repeated exposure , target organ(s) : Central nervous system , Ears

STOT - repeated exposure				
Aluminum hydroxide (21645-51-2)				
Route of Exposure	Method	Species	Dose	Remarks
Oral	OECD 407	rat	NOAEL (28d) = 300 mg/kg bw	
Inhalation	Read-across (Analogy) with Aluminium powder and Aluminium oxide dust OECD 413	hamster	NOAEC (dust) = 70 mg/m³ air	
Inhalation	OECD 412	rat	NOAEC (aerosol) = 3 mg/m³ air LOAEC (aerosol) = 28 mg/m³ air	

Styrene (100-42-5)				
Route of Exposure	Method	Species	Dose	Remarks

Inhalation	OECD 412	rat mouse	NOAEC male (28d) = 3.47 mg/L air NOAEC (ototoxicity) 28d = 2.13 mg/L air NOAEC (28d) = 0.181 mg/L air NOAEC (28d) = 0.688 mg/L air	
Inhalation	No information available	rat	NOAEC (nasal tract) = 0.85 mg/L air NOAEC (overall) = 2.13 mg/L air NOAEC (ototoxicity) = 0.85 mg/L air LOAEC (ototoxicity) = 3.41 mg/L air NOAEC (overall) = 2.13 mg/L air	
Oral	No information available	rat	NOAEL (toxicity) = 1000 mg/kg bw/day LOAEL (toxicity) = 2000 mg/kg bw/day	
Oral	No information available	mouse	NOAEL (toxicity) = 150 mg/kg bw /day LOAEL (toxicity) = 300 mg/kg bw /day	
Inhalation	OECD 453	rat	LOAEC local (toxicity) = 0.21 mg/L air	

2-hydroxyethyl methacrylate (868-77-9)				
Route of Exposure	Method	Species	Dose	Remarks
Oral	OECD 422	rat	NOEL (male/female) < 30 mg/kg bw/day	

Methyl methacrylate (80-62-6)				
Route of Exposure	Method	Species	Dose	Remarks
Oral	OECD 453	rat	NOAEL (male/female) >= 2000 ppm NOAEL (male) >= 124.1 mg/kg bw/day NOAEL >= 164 mg/kg bw/day	
Inhalation	OECD 453	rat	NOAEC (90d) = 1000 ppm	

Pyrogenic micro-dispersed silica, synthetic X-ray amorphous silicon dioxide (SiO2) (112945-52-5)				
Route of Exposure	Method	Species	Dose	Remarks
Oral	OECD 408	rat	NOEL (highest dose) 4000 <= 4500 mg/kg bw/day 90d	
Inhalation	OECD 413	rat	NOEC = 1.3 mg/m³ air NOEC < 1.3 mg/m³ air 90d	
Dermal	No information available	rabbit	NOAEL >= 10000 mg/kg bw/day	

Aspiration hazard Due to the viscosity, this product does not present an aspiration hazard.

Other information None

SECTION 12: Ecological information

12.1. Toxicity

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do not flush into surface water or sanitary sewer system

Acute aquatic toxicity - Component Information

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates.	Toxicity to fish	Toxicity to microorganisms
Aluminum hydroxide 21645-51-2	EC50 (72h) > 100 mg/L (Pseudokirchnerella subcapitata) OECD 201	EC50 (46h) > 100 mg/L (Daphnia magna) OECD 202	LC50 (96h) > 100 mg/L (Salmo trutta) OECD 203	
Styrene 100-42-5	LC50 (72h) = 4.9 mg/L (Pseudokirchnerella subcapitata) EPA OTS 797.1050	EC50 (48h) = 4.7 mg/L (Daphnia magna) NOEC = 1.9 mg/L (Daphnia magna) OECD 202	LC50 (96h) = 4.02 - 10 mg/L (Pimephales promelas) OECD 203	EC (30min) = 500 mg/L (Activated sludge of a predominantly domestic sewage) OECD 209
Talc 14807-96-6			LC50 (96h) = 100 g/L (Brachydanio rerio)	
2-hydroxyethyl methacrylate 868-77-9	EC50 (72h) = 836 mg/L (Pseudokirchnerella subcapitata) OECD 201	EC50 (48h) = 380 mg/L (Daphnia magna) OECD 202	LC50 (96h) > 100 mg/L (Oryzias latipes) OECD 203	EC50 = 2204 mg/L (Photobacterium phosphoreum), DIN 38412 Teil 34 EC0 (16h) > 3000 mg/L (Pseudomonas fluorescens), growth inhibition test DEV L8 (Deutsches Einheitsverfahren)
Methyl methacrylate 80-62-6	EC50 (72h) > 110 mg/L (Selenastrum capricornutum) OECD 201	EC50 (48h) = 69 mg/L (Daphnia magna) OECD 202	LC50 (96h) = 79 mg/L (Oncorhynchus mykiss) OECD 203	EC3 (16h) = 100 mg/L (Pseudomonas putida) inhibition test, Bringmann-Kühn
Pyrogenic micro-dispersed silica, synthetic X-ray amorphous silicon dioxide (SiO2) 112945-52-5		EL50 (24h) >= 1000 mg/L (Daphnia magna) OECD 202	LC50 (96h) > 10000 mg/L (Brachydanio rerio) OECD 203	

Chronic aquatic toxicity - Component Information

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates.	Toxicity to fish	Toxicity to microorganisms
Aluminum hydroxide 21645-51-2	NOEC (72h) >= 0.004 mg/L (Pseudokirchnerella subcapitata) OECD 201		NOEC (96h) > 48.2 mg/L (Pimephales promelas)	
Styrene 100-42-5		NOEC (21d) = 1.01 mg/L (Daphnia magna) LOEC (21d) = 2.06 mg/L (Daphnia magna) EC50 (21d) = 1.88 mg/L (Daphnia magna) OECD 203		
2-hydroxyethyl methacrylate 868-77-9	NOEC (72h) = 400 mg/L (Pseudokirchnerella subcapitata) OECD 201	NOEC (21d) = 24.1 mg/L (Daphnia magna) OECD 211		
Methyl methacrylate 80-62-6	NOEC (72h) = 49 mg/L (Selenastrum capricornutum) OECD 201	NOEC (21d) = 37 mg/L (Daphnia magna) OECD 211	NOEC (35d) = 9.4 mg/L, LOEC (35d) = 18.8 mg/L (Danio rerio) OECD 210	NOEC (28d) > 1000 mg/kg soil dw OECD Chemicals Testing Program UPEC/3

Effects on terrestrial organisms - Component Information

Chronic toxicity
Styrene (100-42-5)

Chronic toxicity	Method	Species	Values	Remarks
Toxicity to invertebrates	OECD 207	Eisenia foetida	LC50 (14d) = 120 mg/kg soil dw LOEC (burrowing time and mean percent weight change) = 65 mg/kg soil dw LOEC (survival) = 180 mg/kg soil dw NOEC (mean percent weight change) = 34 mg/kg soil dw	

12.2. Persistence and degradability

Chemical Name	Biodegradation	Evaluation
Styrene 100-42-5	87% (20d) similar to OECD 301D	Readily biodegradable
2-hydroxyethyl methacrylate 868-77-9	2 - 100 % (14d), OECD 301 C 84% (28d) activated sludge domestic, OECD 301 D	Readily biodegradable
Methyl methacrylate 80-62-6	94.3 % (14d) OECD 301 C	Readily biodegradable

12.3. Bioaccumulative potential

Bioconcentration factor (BCF)		
Styrene (100-42-5)		
Method	Species	Bioconcentration factor (BCF)
Calculation method		74

Methyl methacrylate (80-62-6)		
Method	Species	Bioconcentration factor (BCF)
Calculation method QSAR		2.97

Chemical Name	log Pow
Styrene 100-42-5	3
2-hydroxyethyl methacrylate 868-77-9	0.42
Methyl methacrylate 80-62-6	1.38

12.4. Mobility in soil

Chemical Name	LogKoc	Koc
Styrene 100-42-5	2.55	352
2-hydroxyethyl methacrylate 868-77-9	-	42.7
Methyl methacrylate 80-62-6	0.94 - 1.86	-

12.5. Results of PBT and vPvB assessment

Chemical Name	PBT	vPvB
Aluminum hydroxide 21645-51-2	This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).	This substance is not considered to be very persistent nor very bioaccumulating (vPvB).
Styrene 100-42-5	This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).	This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

2-hydroxyethyl methacrylate 868-77-9	This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).	This substance is not considered to be very persistent nor very bioaccumulating (vPvB).
Methyl methacrylate 80-62-6	This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).	This substance is not considered to be very persistent nor very bioaccumulating (vPvB).
Pyrogenic micro-dispersed silica, synthetic X-ray amorphous silicon dioxide (SiO2) 112945-52-5	This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).	This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

12.6. Autres effets néfastes

None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from Residues/Unused Products Dispose of in accordance with the European Directives on waste and hazardous waste. Do not flush into surface water or sanitary sewer system

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

Other information According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: Transport information

ADR/RID

UN-No	UN1866
Hazard class	3
Proper shipping name	Resin solution
Packing group	III
Classification Code	F1
Tunnel restriction code	(D/E)
ADR Hazard Id (Kemmler Number)	30
Description	UN1866, RESIN SOLUTION, 3, PG III, (D/E)
Limited quantity	5 L

IMDG/IMO

UN-No	UN1866
Hazard class	3
Proper shipping name	Resin solution
Packing group	III
Marine pollutant	NP
EmS	F-E, S-E
Description	UN1866, RESIN SOLUTION, 3, PG III, (31°C c.c.)
Limited quantity	5 L

ICAO/IATA

UN-No	UN1866
Hazard class	3
Packing group	III
ERG Code	3L
Description	UN1866, RESIN SOLUTION, 3, PG III
Limited quantity	10 L

ADN

UN-No	UN1866
Hazard class	3
Proper shipping name	Resin solution
Packing group	III
Classification Code	F1
Special Provisions	640E
Description	UN1866, RESIN SOLUTION, 3, PG III
Limited quantity	5 L
ventilation	VE01

Special precautions for users

Special precautions No information available

SECTION 15: Regulatory information

This mixture is classified as hazardous according to regulation (EC) No. 1272/2008 [CLP]

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

European Union

Chemical Name	96/82/EC (SEVESO) - §9	96/82/EC (SEVESO) - §6, §7
Styrene - 100-42-5	50000	5000 tonnes 50000 tonnes

National regulatory information

The United Kingdom

Avoid exceeding of the given occupational exposure limits (see section 8).

Ireland

Avoid exceeding of the given occupational exposure limits (see section 8).

15.2. Chemical safety assessment

not applicable

SECTION 16: Other information

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

H225 - Highly flammable liquid and vapour
H226 - Flammable liquid and vapour
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H335 - May cause respiratory irritation
H361d - Suspected of damaging the unborn child
H372 - Causes damage to organs through prolonged or repeated exposure if inhaled
H412 - Harmful to aquatic life with long lasting effects

Former date	12-Dec-2014
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Revision Note	SDS sections updated : 1 , 8 , 9 , 14

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet