



SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

SDS n° : FP21021

**METROFLEX ROOFING
RESIN**

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

1.1. Product identifier

Product name	METROFLEX ROOFING RESIN
Chemical Name	Gel Coat polyester for composites.
Pure substance/mixture	Mixture
Unique Formula Identifier (UFI)	8PW9-A0F8-K00M-U2Q9

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

Identified uses	To form a protective and decorative layer for GRP composites. Contact us before using for food contact application.
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1.3. Details of the supplier of the safety data sheet

Supplier	CFSNET Ltd United Downs Industrial Park St Day Redruth Cornwall TR16 5HY Tel: 01209 821028
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The supplier of the product is, among those indicated above, the one identified on the label and / or in the sales documents

For further information, please contact

E-mail address	sales@cfsnet.co.uk
Internet Address	www.cfsnet.co.uk

1.4. Emergency telephone number

0800 246 1274

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This telephone number is available 24 hours per day, 7 days per week.

Europe :	+44 1235 239 670
Middle East/Africa :	+44 1235 239 671
East/South East Asia :	+65 3158 1412
America :	+1 215 207 0061

**Poison Information Centre
telephone number**

European emergency phone number : 112
 UK : National Poisons Emergency Number : 0344 892 0111
 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 - (H315)
Serious Eye Damage/Eye Irritation	Category 2 - (H319)
Skin Sensitization	Category 1 - (H317)
Reproductive Toxicity	Category 2 - (H361d)
Specific Target Organ Toxicity (Single Exposure)	Category 3 - (H335)
Specific target organ toxicity— repeated exposure	Category 1 - (H372)
Flammable liquids	Category 3 - (H226)

2.2. Label elements

Contains Maleic anhydride, 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
 H226 - Flammable liquid and vapour

Physical hazards

EU H -Phrases

EUH208 Contains Fatty acids, C14-18 and C16-18-unsatd., maleated- May produce an allergic reaction.

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Precautionary Statements

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
 P243 - Take action to prevent static discharges
 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 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
 P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

2.3. Other hazards

PBT/vPvB see section 12.5.

SECTION 3: Composition/information on ingredients**3.2. Mixtures****Hazardous components**

Chemical Name	EC-No	REACH Registration Number	CAS-No	Weight percent	GHS Classification	M-Factor (acute)	M-Factor (chronic)	Concentrati on limit (%)
Aluminum hydroxide	244-492-7	01-2119529246-39	21645-51-2	> 20	-			
Styrene	202-851-5	01-2119457861-32	100-42-5	20 - < 25	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)			
Titanium dioxide	236-675-5	01-2119489379-17	13463-67-7	1 - 5	-			
Amorphous Silica	231-545-4	01-2119379499-16	7631-86-9	0.1 - < 1	-			
Xylene	215-535-7	01-2119488216-32	1330-20-7	0.1 - < 1	Flam. Liq. 3 (H226) Asp. Tox. 1 (H304) Acute Tox. 4 (H312) Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H335) STOT RE 2 (H373)			
Fatty acids, C14-18 and C16-18-unsatd., maleated	701-043-4	01-2119976378-19	85711-46-2	0.1 - < 1	Skin Irrit. 2 (H315) Skin Sens. 1 (H317)			
Ethylbenzene	202-849-4	01-2119489370-35	100-41-4	0.1 - < 1	Flam. Liq. 2 (H225) Acute Tox. 4 (H332) Asp. Tox. 1 (H304) STOT RE 2 (H373) Aquatic Chronic 3 (H412)			

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Maleic anhydride	203-571-6	01-2119472428-31	108-31-6	0.001 - < 0.01	Acute Tox. 4 (H302) Skin Corr. 1B (H314) Skin Sens. 1A (H317) Eye Dam. 1 (H318) Resp. Sens. 1 (H334) STOT RE 1 (H372) STOT RE 2 (H373) (EUH071)			Skin Sens. 1A::C>= 0.001%
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Additional information Acute Toxicity Estimate See Section 11 for more information

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

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5.1. Extinguishing media**Suitable Extinguishing Media** Dry chemical, Foam, Carbon dioxide (CO₂), (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**

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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 Empty containers may contain flammable or explosive vapours

Hygiene Measures

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

7.2. Conditions for safe storage, including any incompatibilities**Technical measures/Storage conditions**

Keep in a dry, cool and well-ventilated place
 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 copper, Copper alloys, Bronze, Zinc

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/m ³ STEL 12 mg/m ³ TWA 10 mg/m ³ TWA 4 mg/m ³	We are not aware of any national exposure limit.
Styrene 100-42-5	-	ACGIH (2020): TLV-TWA: 10 ppm TLV-STEL/C: 20 ppm Notes: OTO, A3, BEI Critical effects: CNS and hearing impairment, URT irr, peripheral neuropathy visual disorders	STEL 250 ppm STEL 1080 mg/m ³ TWA 100 ppm TWA 430 mg/m ³	TWA 85 mg/m ³ TWA 20 ppm STEL 40 ppm STEL 170 mg/m ³
Titanium dioxide 13463-67-7		TWA 10 mg/m ³	STEL 30 mg/m ³ STEL 12 mg/m ³ TWA 10 mg/m ³ TWA 4 mg/m ³	TWA 10 mg/m ³ TWA 4 mg/m ³
Amorphous Silica 7631-86-9			STEL 18 mg/m ³ STEL 7.2 mg/m ³ TWA 6 mg/m ³ TWA 2.4 mg/m ³	TWA 6 mg/m ³ TWA 2.4 mg/m ³
Xylene 1330-20-7	TWA 50 ppm TWA 221 mg/m ³ STEL 100 ppm STEL 442 mg/m ³ S*	TWA 100 ppm	STEL 100 ppm STEL 441 mg/m ³ TWA 50 ppm TWA 220 mg/m ³ Skin	TWA 50 ppm TWA 221 mg/m ³ STEL 100 ppm STEL 442 mg/m ³ Skin
Ethylbenzene 100-41-4	TWA 100 ppm TWA 442 mg/m ³ STEL 200 ppm STEL 884 mg/m ³ S*	TWA 100 ppm	STEL 125 ppm STEL 552 mg/m ³ TWA 100 ppm TWA 441 mg/m ³ Skin	TWA 100 ppm TWA 435 mg/m ³ STEL 125 ppm STEL 545 mg/m ³ Skin
Maleic anhydride 108-31-6		TWA 0.1 ppm	STEL 3 mg/m ³ TWA 1 mg/m ³ Sen+	TWA 0.25 ppm TWA 1 mg/m ³ Sensitizer

Special hazards arising from the substance or mixture**Biological standards**

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Chemical Name	European Union	The United Kingdom	Ireland
Xylene 1330-20-7	-	Methyl hippuric acid in urine: 650 mmol/mol creatinine, end of shift	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/m ³	
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/m ³	
Workers - Acute Short Term - Local effect			306 mg/m ³	
Workers - Acute Short term - Systemic effect			289 mg/m ³	
General Population - Acute Short Term - Local effect			182.7 mg/m ³	
General Population - Acute Short Term - Systemic effect			174.2 mg/m ³	
General Population - Long Term - Systemic effect	2.1 mg/Kg bw/day	343 mg/Kg bw/day	10.2 mg/m ³	

Titanium dioxide (13463-67-7)				
Type	DNEL oral	DNEL dermal	DNEL inhalation	Remark
Workers - Long Term - Local effect			10 mg/m ³	
General Population - Long Term - Systemic effect	700 mg/kg bw/day			

Amorphous Silica (7631-86-9)				
Type	DNEL oral	DNEL dermal	DNEL inhalation	Remark
Workers - Long Term - Systemic effect			4 mg/m ³	

Xylene (1330-20-7)				
Type	DNEL oral	DNEL dermal	DNEL inhalation	Remark
Workers - Long Term - Systemic effect		180 mg/kg bw/day	77 mg/m ³	
Workers - Acute Short term - Systemic effect			289 mg/m ³	
Workers - Acute Short Term - Local effect			289 mg/m ³	
General Population - Long Term - Systemic effect	1.6 mg/kg bw/day	108 mg/kg bw/day	14.8 mg/m ³	
General Population - Acute Short Term - Systemic effect			174 mg/m ³	
General Population - Acute Short Term - Local effect			174 mg/m ³	

Fatty acids, C14-18 and C16-18-unsatd., maleated (85711-46-2)				
Type	DNEL oral	DNEL dermal	DNEL inhalation	Remark

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Workers - Long Term - Systemic effect		3 mg/kg bw/day		
General Population - Long Term - Systemic effect	1.5 mg/kg bw/day	1.5 mg/kg bw/day		

Ethylbenzene (100-41-4)				
Type	DNEL oral	DNEL dermal	DNEL inhalation	Remark
Workers - Acute Short Term - Local effect			293 mg/m ³	
Workers - Long Term - Systemic effect		180 mg/kg bw/day	77 mg/m ³	
General Population - Long Term - Systemic effect	1.6 mg/kg bw/day		15 mg/m ³	

Maleic anhydride (108-31-6)				
Type	DNEL oral	DNEL dermal	DNEL inhalation	Remark
Workers - Long Term - Systemic effect			0.081 mg/m ³	
Workers - Acute Short term - Systemic effect			0.2 mg/m ³	
Workers - Long Term - Local effect			0.081 mg/m ³	
Workers - Acute Short Term - Local effect			0.2 mg/m ³	

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

Titanium dioxide (13463-67-7)		
Exposure	Type	PNEC
Fresh water	PNEC Aqua	0.184 mg/L
Marine water	PNEC Aqua	0.0184 mg/L
Intermittent use/release	PNEC Aqua	0.193 mg/L
	PNEC STP	100 mg/L
Fresh water	PNEC Sediment	1000 mg/kg sediment dw
Marine water	PNEC Sediment	100 mg/kg sediment dw
	PNEC Soil	100 mg/kg soil dw

Amorphous Silica (7631-86-9)		
Exposure	Type	PNEC
Secondary Poisoning	PNEC Oral	60000 mg/kg

Xylene (1330-20-7)		
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Exposure	Type	PNEC
Fresh water	PNEC Aqua	0.327 mg/L
Marine water	PNEC Aqua	0.327 mg/L
Intermittent use/release	PNEC Aqua	0.327 mg/L
	PNEC STP	6.58 mg/L
Fresh water	PNEC Sediment	12.46 mg/kg sediment dw
Marine water	PNEC Sediment	12.46 mg/kg sediment dw
	PNEC Soil	2.31 mg/kg soil dw

Fatty acids, C14-18 and C16-18-unsatd., maleated (85711-46-2)

Exposure	Type	PNEC
Secondary Poisoning	PNEC Oral	67 mg/kg food

Ethylbenzene (100-41-4)

Exposure	Type	PNEC
Marine water	PNEC Aqua	0.01 mg/L
Fresh water	PNEC Aqua	0.1 mg/L
	PNEC STP	9.6 mg/L
Fresh water	PNEC Sediment	13.7 mg/kg sediment dw
Marine water	PNEC Sediment	1.37 mg/kg sediment dw
	PNEC Soil	2.68 mg/kg soil dw

Maleic anhydride (108-31-6)

Exposure	Type	PNEC
Fresh water	PNEC Aqua	0.038 mg/L
Intermittent use/release	PNEC Aqua	0.379 mg/L
Marine water	PNEC Aqua	0.004 mg/L
	PNEC STP	44.6 mg/L
Fresh water	PNEC Sediment	0.296 mg/kg sediment dw
Marine water	PNEC Sediment	0.03 mg/kg sediment dw
	PNEC Soil	0.037 mg/kg soil dw

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 Respiratory Protection

Use personal protective equipment.
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 Skin and Body Protection Hand Protection

Safety glasses with side-shields. Do not wear contact lenses.
Antistatic boots. Protective shoes or boots. Wear fire/flame resistant/retardant clothing.
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.

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Property	Values	Remark
Physical state	Viscous liquid	
Colour	grey	
Appearance		No data available
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
point/range	- 30 °C	Values related to styrene
Point		No data available
No data available		
Boiling point	145 °C	Values related to styrene
Flash point	31 °C	Values related to styrene
Flammability		No data available
Flammability Limit in Air		
Upper	6,1 - 6,8%	Values related to styrene
Lower	0,9 -1,1%	Values related to styrene
Vapour pressure	1 kPa	25°C Values related to styrene
Vapour density	3.6	Values related to styrene
Density	1.45 - 1.50 g/cm3	23°C
Specific Gravity		No data available
Bulk density		No data available
Water solubility	Insoluble in water	
Solubility in other solvents	Soluble in most organic solvents	
Partition coefficient:	3	Values related to styrene
n-octanol/water		
Autoignition temperature	490 °C	Values related to styrene
Decomposition temperature		No data available
Viscosity, kinematic	3448 - 4828 mm2/s	25°C
Viscosity, dynamic	5000 - 7000 mPa.s	25°C

9.2. Other information

Information with regards to physical hazard classes

Property	Values	Remark
Explosives		No data available
Flammable gases		No data available
Aerosols		No data available
Oxidising gases		No data available
Gases under pressure		No data available
Flammable liquids		No data available
Flammable solids		No data available
Pyrophoric liquids		No data available
Pyrophoric solids		No data available
Self-heating substances and mixtures		No data available
Substances and mixtures which, in contact with water, emit flammable gases		No data available
Oxidising liquids		No data available
Oxidising solids		No data available

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Oxidising Properties
Organic peroxides
Corrosive to metals
Desensitised explosives

No data available
No data available
No data available
No data available

Other safety characteristics

Sensitivity to Mechanical Impact
**SAPT (self-accelerating
polymerisation temperature)**
**Formation of explosible dust/air
mixtures**
Acid/alkaline reserve
Miscible
Conductivity
Corrosiveness
Gas group
Redox potential
Photocatalytic properties

No data available
No data available
No data available
No data available
No data available
No data available
No data available
No data available
No data available

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 hazard classes as defined in Regulation (EC) No 1272/2008****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	

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Styrene 100-42-5	5000 mg/kg (Rat)	> 2000 mg/kg bw (Rat) 24h OECD 402	11.8 mg/L (Rat) 4h CSR	
Titanium dioxide 13463-67-7	> 5000 mg/kg bw (Rat) OECD 425, EPA OPPTS 870.1100		> 6,82 mg/L air (Rat) 4h No guideline followed	
Amorphous Silica 7631-86-9	> 5000 mg/kg bw (Rat) OECD 401	> 5000 mg/kg (Rabbit)	> 0.14 mg/L air (Rat) 4h (analytical) OECD 403	
Xylene 1330-20-7	3523 mg/kg bw (Rat, male) > 4000 mg/kg bw (Rat, female) Similar to EU Method B.1	> 4200 mg/kg bw (Rabbit) No Guideline followed	29091 mg/m ³ (Rat) 4h Similar to EU Method B.2	
Fatty acids, C14-18 and C16-18-unsatd., maleated 85711-46-2	> 2000 mg/kg bw (Rat) OECD 423, EU Method B.1 tris			
Ethylbenzene 100-41-4	3500 mg/kg bw (Rat) No guideline followed	15400 mg/kg bw (Rabbit) No guideline followed	17.6 mg/L (Rat) 4h No guideline followed	
Maleic anhydride 108-31-6	1090 mg/kg bw (Rat) OECD 401	2620 mg/kg bw (Rabbit) No guideline followed		

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	
Titanium dioxide 13463-67-7	No skin irritation in vivo assay rabbit OECD 404 EPA OPPTS 870.2500	
Amorphous Silica 7631-86-9	No skin irritation rabbit OECD 404	
Xylene 1330-20-7	Moderate skin irritation No skin corrosion in vivo assay rabbit similar to EU Method B.4	
Fatty acids, C14-18 and C16-18-unsatd., maleated 85711-46-2	Irritating to skin in vitro study Human dermal OECD 439 EU Method B.46	
Ethylbenzene 100-41-4	Mild skin irritation in vivo assay rabbit	
Maleic anhydride 108-31-6	Causes severe skin burns and eye damage in vivo assay rabbit similar to 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	

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Titanium dioxide 13463-67-7	No eye irritation in vivo assay rabbit OECD 405 EU Method B.5 EPA OPPTS 870.2400	
Amorphous Silica 7631-86-9	No eye irritation rabbit OECD 405	
Xylene 1330-20-7	Moderate eye irritation in vivo assay rabbit	
Fatty acids, C14-18 and C16-18-unsatd., maleated 85711-46-2	No eye irritation in vivo assay (rabbit) OECD 405 EU Method B.5 EPA OPPTS 870.2400	
Ethylbenzene 100-41-4	Mild eye irritation in vivo assay rabbit	
Maleic anhydride 108-31-6	Causes severe eye damage in vivo assay (rabbit) similar to 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	
Titanium dioxide 13463-67-7	Does not cause skin sensitization in vivo assay guinea pig OECD 406 EU Method B.6 EPA OPP 81-6 mouse similar to OECD 429	
Amorphous Silica 7631-86-9	Does not cause skin sensitization Does not cause respiratory sensitization	
Xylene 1330-20-7	Does not cause skin sensitization in vivo assay mouse OECD 429	
Fatty acids, C14-18 and C16-18-unsatd., maleated 85711-46-2	May cause sensitisation by skin contact in vivo assay mouse OECD 429 EU Method B.42	
Ethylbenzene 100-41-4	Does not cause respiratory sensitization in vivo assay human data	

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Maleic anhydride 108-31-6	May cause sensitisation by skin contact in vivo assay mouse similar to OECD 429 May cause sensitisation by inhalation rat	
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Mutagenic Effects**invitro 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	
Titanium dioxide 13463-67-7	negative In vitro gene mutation study in bacteria (S. typhimurium TA 1535, TA 1537, TA 98, TA100 and TA 102) OECD 471	
Amorphous Silica 7631-86-9	negative In vitro gene mutation study in bacteria OECD 471	
Xylene 1330-20-7	negative In vitro gene mutation study in bacteria (S. typhimurium TA 1535, TA 1537, TA 98, TA 100, TA 1538) similar to OECD 471	
Fatty acids, C14-18 and C16-18-unsatd., maleated 85711-46-2	negative In vitro gene mutation study in bacteria (S. typhimurium TA 1535, TA 1537, TA 98 and TA 100) (Escherichia coli WP2 uvrA) OECD 471 EU Method B.13/14 EPA OPPTS 870.5100	
Ethylbenzene 100-41-4	negative In vitro gene mutation study in bacteria (S. typhimurium TA 1535, TA 1537, TA 98 and TA 100) OECD 471	
Maleic anhydride 108-31-6	negative In vitro gene mutation study in bacteria (S. typhimurium TA 1535, TA 1537, TA 98 and TA 100) similar to 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	
Titanium dioxide 13463-67-7	negative In vitro gene mutation study in mammalian cells mouse OECD 476	
Amorphous Silica 7631-86-9	negative In vitro gene mutation study in mammalian cells OECD 476	

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Xylene 1330-20-7	negative In vitro gene mutation study in mammalian cells hamster mouse similar to EU Method B.19 EU Method B.17	
Fatty acids, C14-18 and C16-18-unsatd., maleated 85711-46-2	negative In vitro gene mutation study in mammalian cells mouse OECD 476 EU Method B.17	
Ethylbenzene 100-41-4	negative In vitro gene mutation study in mammalian cells mouse OECD 476	
Maleic anhydride 108-31-6	negative In vitro gene mutation study in mammalian cells hamster 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	
Titanium dioxide 13463-67-7	negative Chromosome aberration test in vitro hamster OECD 473	
Amorphous Silica 7631-86-9	negative Chromosome aberration test in vitro OECD 473	
Xylene 1330-20-7	negative Chromosome aberration test in vitro hamster similar to EU Method B.10	
Fatty acids, C14-18 and C16-18-unsatd., maleated 85711-46-2	negative Chromosome aberration test in vitro hamster OECD 473 EU Method B.10 EPA OPPTS 870.5375	
Ethylbenzene 100-41-4	negative Chromosome aberration test in vitro hamster similar to 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	
Titanium dioxide 13463-67-7	negative rat OECD 474	
Amorphous Silica 7631-86-9	negative rat	

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Xylene 1330-20-7	negative mouse rat similar to OECD 478	
Ethylbenzene 100-41-4	negative mouse OECD 474 OECD 486	
Maleic anhydride 108-31-6	negative rat similar to OECD 475	

Carcinogenicity**Carcinogenicity****Aluminum hydroxide (21645-51-2)**

Routes of Exposure	Method	Species	Dose	Evaluation
Inhalation	OECD TG 413	rat	LOAEC (toxicity powder) = 50 mg/m ³ air NOAEC (toxicity dust) = 50 mg/m ³ air	negative

Styrene (100-42-5)

Routes of Exposure	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

Amorphous Silica (7631-86-9)

Routes of Exposure	Method	Species	Dose	Evaluation
Oral	OECD 453	rat	NOAEL = 1800 - 3200 mg/kg bw/day	negative

Xylene (1330-20-7)

Routes of Exposure	Method	Species	Dose	Evaluation
Oral	similar to EU Method B.32	mouse rat	500 - 1000 mg/kg/bw/day (103 weeks)	negative

Ethylbenzene (100-41-4)

Routes of Exposure	Method	Species	Dose	Evaluation
Inhalation	similar to OECD 453	mouse	NOAEC (carcinogenicity) = 1.1 mg/L (103 weeks)	negative

Maleic anhydride (108-31-6)

Routes of Exposure	Method	Species	Dose	Evaluation
Oral	similar to OECD 451	rat	NOAEL (carcinogenicity) >= 100 mg/kg bw/day NOEL (systemic toxicity) = 10 mg/kg bw/day 2 years	negative

Reproductive Toxicity**Reproductive Toxicity****Aluminum hydroxide (21645-51-2)**

Routes of Exposure	Method	Species	Dose	Evaluation
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Oral	OECD 422	rat	NOAEL (reproductive toxicity) = 1000 mg/kg bw/day Read across with Cas N° : 1327-41-9	negative
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Styrene (100-42-5)

Routes of Exposure	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

Amorphous Silica (7631-86-9)

Routes of Exposure	Method	Species	Dose	Evaluation
Oral	OECD 415	rat	NOAEL = 497 mg/kg bw/day	negative

Xylene (1330-20-7)

Routes of Exposure	Method	Species	Dose	Evaluation
Inhalation	similar to EPA OPPTS 870.3800	rat	NOAEC (vapour) reproductive and developmental toxicity > 500 ppm (2171 mg/m³)	negative

Fatty acids, C14-18 and C16-18-unsatd., maleated (85711-46-2)

Routes of Exposure	Method	Species	Dose	Evaluation
Oral	OECD 422	rat	NOAEL (F1) = 1000 mg/kg bw/day	negative

Ethylbenzene (100-41-4)

Routes of Exposure	Method	Species	Dose	Evaluation
Inhalation	similar to OECD 415	rat	NOAEC = 1000 ppm NOEC F1 = 100 ppm	negative
Inhalation Oral	OECD 416	rat	NOAEC (P, F1, F2) = 500 ppm NOEC (P) = 100 ppm	negative

Maleic anhydride (108-31-6)

Routes of Exposure	Method	Species	Dose	Evaluation
Oral	similar to OECD 416	rat	NOAEL (fertility) P/F1 = 55 mg/kg bw/day LOAEL (systemic) P/F1 = 20 mg/kg bw/day LOEL (local) P = 20 mg/kg bw/day	negative

Developmental Toxicity Suspected of damaging the unborn child.**Developmental Toxicity****Aluminum hydroxide (21645-51-2)**

Routes of Exposure	Method	Species	Dose	Evaluation
Oral	OECD 414	rat	NOAEL (embryotoxicity/teratogenicity) = 266 mg/kg bw/day	negative

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Styrene (100-42-5)				
Routes of Exposure	Method	Species	Dose	Evaluation
Inhalation	No information available	rat	NOAEC/LOAEC (maternal toxicity + developmental 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

Titanium dioxide (13463-67-7)				
Routes of Exposure	Method	Species	Dose	Evaluation
Oral	OECD 414	rat	NOAEL (maternal & developmental toxicity) 20d = 1000 mg/kg bw/day	negative

Amorphous Silica (7631-86-9)				
Routes 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

Xylene (1330-20-7)				
Routes of Exposure	Method	Species	Dose	Evaluation
Inhalation	similar to OECD 414	rat	NOAEC (maternal and developmental toxicity) = 2171 mg/m³ NOAEC (teratogenicity) >= 8684 mg/m³	negative

Fatty acids, C14-18 and C16-18-unsatd., maleated (85711-46-2)				
Routes of Exposure	Method	Species	Dose	Evaluation
Oral	OECD 414	rat	NOAEL (developmental toxicity) >= 1000 mg/kg bw/day	negative

Ethylbenzene (100-41-4)				
Routes of Exposure	Method	Species	Dose	Evaluation
Inhalation	OECD 414	rat	NOAEC (maternal toxicity) = 1000 ppm NOAEC (teratogenicity) = 2000 ppm NOAEC (developmental toxicity) = 500 ppm	negative

Maleic anhydride (108-31-6)				
Routes of Exposure	Method	Species	Dose	Evaluation
Oral	similar to OECD 414	rat	NOAEL (maternal toxicity) = > 140 mg/kg bw/day NOAEL (teratogenicity) >= 140 mg/kg bw/day NOAEL (fetotoxicity) >= 140 mg/kg bw/day	negative

Chemical Name	European Union
Styrene 100-42-5	Repr. 2

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Specific target organ toxicity May cause irritation of respiratory tract

single exposure

Specific target organ toxicity Causes damage to organs through prolonged or repeated exposure , target organ(s) :

Central nervous system , Ears

repeated exposure

STOT - repeated exposure

Aluminum hydroxide (21645-51-2)

Routes 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)

Routes 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	

Titanium dioxide (13463-67-7)

Routes of Exposure	Method	Species	Dose	Remarks
Oral	OECD 407	rat	NOEL (29d) = 24000 mg/kg bw/day	
Oral	OECD 408	rat	NOAEL (92-93d) > 1000 mg/kg/day	

Amorphous Silica (7631-86-9)

Routes of Exposure	Method	Species	Dose	Remarks
Oral	OECD 408	rat	NOEL (highest dose) 4000 <= 4500 mg/kg bw/day 90d	

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Inhalation	OECD 413	rat	NOEC = 1.3 mg/m ³ air NOEC < 1.3 mg/m ³ air 90d	
Dermal	No information available	rabbit	NOAEL >= 10000 mg/kg bw/day	

Xylene (1330-20-7)

Routes of Exposure	Method	Species	Dose	Remarks
Oral	similar to EU Method B.32	rat	LOAEL (90d) male = 150 mg/kg bw/day NOAEL (90d) female = 150 mg/kg bw/day	

Fatty acids, C14-18 and C16-18-unsatd., maleated (85711-46-2)

Routes of Exposure	Method	Species	Dose	Remarks
Oral	OECD 408	rat	NOAEL (systemic toxicity) 90d = 300 mg/kg bw/day	

Ethylbenzene (100-41-4)

Routes of Exposure	Method	Species	Dose	Remarks
Oral	OECD 407	rat	NOAEL (28d) = 75 mg/kg bw/day	
Inhalation	OECD 412	mouse	NOAEL (4 weeks) = 3.5 mg/L	
Oral	OECD 408	rat	NOAEL (3 months) = 75 mg/kg bw/day	
Inhalation	OECD 413	mouse	NOAEC (13 weeks) = 4.3 mg/L	
Inhalation	OECD 453	rat	NOAEC (104 weeks) = 1.1 mg/L	

Maleic anhydride (108-31-6)

Routes of Exposure	Method	Species	Dose	Remarks
Oral	similar to OECD 408	rat	LOAEL (90 & 183d) = 250 mg/kg bw/day	
Oral	similar to OECD 409	dogs	NOAEL (90d) = 60 mg/kg bw/day	
Oral	similar to OECD 452	rat	NOEL (2 years) = 10 mg/kg bw/day LOEL (2 years) = 32 mg/kg bw/day	
Inhalation	similar to OECD 412	rat	LOAEC (local) = 0.01 mg/L air LOAEC (systemic) = 0.01 mg/L air 1 month	

Aspiration Hazard

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

11.2 Information on other hazards

Endocrine disrupting properties No information available
Other Information None

SECTION 12: Ecological information**12.1. Toxicity**

Do not flush into surface water or sanitary sewer system

Acute aquatic toxicity - Component Information

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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 (48h) > 100 mg/L (Daphnia magna) OECD 202	LC50 (96h) > 100 mg/L (Salmo trutta) OECD 203	
Styrene 100-42-5	EC50 (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
Titanium dioxide 13463-67-7	EC50 (72h) > 100 mg/L (Pseudokirchnerella subcapitata) NOEC (72h) >= 100 mg/L (Pseudokirchnerella subcapitata) OECD 201	EC50 (48h) > 100 mg/L (Daphnia magna) OECD 202	LC50 (96h) > 100 mg/L (Carassius auratus) NOEC (96h) >= 100 mg/L (Carassius auratus) OECD 203	EC50 (3h) > 1000 mg/L, NOEC (3h) >= 1000 mg/L (Activated sludge of a predominantly domestic sewage) OECD 209
Amorphous Silica 7631-86-9		EL50 (24h) >= 1000 mg/L (Daphnia magna) OECD 202	LC50 (96h) > 10000 mg/L (Brachydanio rerio) OECD 203	
Xylene 1330-20-7	EC50 (73h) = 2.2 mg/L (Pseudokirchnerella subcapitata) OECD 201	LC50 (24h) = 1 mg/L (Daphnia magna) OECD Guideline 202	LC50 (96h) = 2.6 mg/L (Oncorhynchus mykiss) OECD 203	EC50 (3h) > 157 mg/L (Activated sludge, domestic) NOEC (3h) = 157 mg/L (Activated sludge, domestic) OECD 209
Fatty acids, C14-18 and C16-18-unsatd., maleated 85711-46-2	EL50 (72h) > 100 mg/L (Pseudokirchnerella subcapitata) OECD 201, EU Method C.3, EPA OPPTS 850.5400	EL50 (48h) > 100 mg/L (Daphnia magna) OECD 202, EU Method C.2, EPA OPPTS 850.1010		EC50 (3h) > 1000 mg/L (Activated sludge of a predominantly domestic sewage) OECD 209
Ethylbenzene 100-41-4	EC50 (96h) = 3.6 mg/L (Pseudokirchnerella subcapitata) U.S. EPA. 1985. TSCA Test guidelines: Final Rules 797.1050	EC50 (48h) = 1.8 - 2.4 mg/L (Daphnia magna) EPA method F	LC50 (96h) = 4.2 mg/L (Oncorhynchus mykiss) OECD 203	EC20 (30min) = 200 mg/L (Activated sludge, domestic) OECD 209
Maleic anhydride 108-31-6	EC50 (72h) = 74.35 mg/L (Pseudokirchnerella subcapitata) OECD 201	EC50 (48h) = 42.81 mg/L (Daphnia magna) OECD 202	LC50 (96h) = 75 mg/L (Lepomis macrochirus, Oncorhynchus mykiss) EPA-660/3-75-009	EC10 (18h) = 44.6 mg/L (Pseudomonas putida) DIN 38412-8

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		
Xylene 1330-20-7	NOEC (73h) = 0.44 mg/L (Pseudokirchnerella subcapitata) OECD 201			

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Fatty acids, C14-18 and C16-18-unsatd., maleated 85711-46-2		NOELR (21d) = 10 mg/L (Daphnia magna) OECD 211, EU Method C.20		
Ethylbenzene 100-41-4		NOEC (7d) = 0,96 mg/L (Ceriodaphnia dubia) U.S. EPA 600/4-91-003EPA		
Maleic anhydride 108-31-6		NOEC (21d) = 10 mg/L (Daphnia magna) EC50 (21d) = 77 mg/L (Daphnia magna) No guideline followed		

Effects on terrestrial organisms - Component Information

Acute toxicity				
Xylene (1330-20-7)				
Acute toxicity	Test Method	Species	Values	Remarks
Other plants	OECD 208	Lactuca sativa	EC50 (14d) > 1000 µg/kg	

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	

Ethylbenzene (100-41-4)				
Chronic toxicity	Method	Species	Values	Remarks
Toxicity to invertebrates	OECD 207	Eisenia foetida	LC50 (48h) = 0.047 mg/cm ²	

12.2. Persistence and degradability

Chemical Name	Biodegradation	Evaluation
Styrene 100-42-5	87% (20d) similar to OECD 301D	Readily biodegradable
Xylene 1330-20-7	87.8% (28d) Read across with benzoic acid, sodium salt OECD 301 F	Readily biodegradable
Fatty acids, C14-18 and C16-18-unsatd., maleated 85711-46-2	30-40% (28d) Activated sludge, domestic, non-adapted OECD 301 F, EU Method C.4-D	Inherently biodegradable.
Ethylbenzene 100-41-4	70 - 80 % (28d) OECD 310 100 % (6d) OECD 301E	Readily biodegradable
Maleic anhydride 108-31-6	> 90 % (25d) Read across with : benzoic acid, sodium salt OECD 301 B	Readily biodegradable

12.3. Bioaccumulative potential

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

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Xylene (1330-20-7)		
Method	Species	Bioconcentration factor (BCF)
No data available	Oncorhynchus mykiss	25.9 (56d)

Ethylbenzene (100-41-4)		
Method	Species	Bioconcentration factor (BCF)
No data available	Various species of marine pelecypods	< 10

Chemical Name	log Pow
Styrene 100-42-5	3
Xylene 1330-20-7	3.12 - 3.2
Fatty acids, C14-18 and C16-18-unsatd., maleated 85711-46-2	1
Ethylbenzene 100-41-4	2.92
Maleic anhydride 108-31-6	-2.61

12.4. Mobility in soil

Chemical Name	LogKoc	Koc
Styrene 100-42-5	2.55	352
Xylene 1330-20-7	2.73	537
Maleic anhydride 108-31-6	1.63	42

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).
Titanium dioxide 13463-67-7	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).
Amorphous Silica 7631-86-9	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).
Xylene 1330-20-7	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).
Fatty acids, C14-18 and C16-18-unsatd., maleated 85711-46-2	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).
Ethylbenzene 100-41-4	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).
Maleic anhydride 108-31-6	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).

12.6 Endocrine disrupting properties

Endocrine disrupting properties No information available

12.7 Other Adverse Effects

None known.

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Version: 1

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**14.1. UN number or ID number**

ADR/RID	UN1866
IMDG/IMO	UN1866
ICAO/IATA	UN1866
ADN	UN1866

14.2. UN proper shipping name**ADR/RID**

RESIN SOLUTION
UN1866, RESIN SOLUTION, 3, PG III, (D/E)

IMDG/IMO

RESIN SOLUTION
UN1866, RESIN SOLUTION, 3, PG III, (31°C c.c.)

ICAO/IATA

Resin solution
UN1866, Resin solution, 3, PG III

ADN

RESIN SOLUTION
UN1866, RESIN SOLUTION, 3, PG III

14.3. Transport hazard class(es)**ADR/RID**

Hazard class 3

IMDG/IMO

Hazard class 3

ICAO/IATA

Hazard class 3

ADN

Hazard class 3

14.4. Packing group

ADR/RID	III
IMDG/IMO	III
ICAO/IATA	III

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ADN III

14.5. Environmental hazards

ADR/RID No

IMDG/IMO No

Marine pollutant No

ICAO/IATA No

ADN No

14.6. Special precautions for user

ADR/RID

Classification Code F1

Tunnel restriction code (D/E)

Limited quantity 5 L

IMDG/IMO

EmS F-E, S-E

Limited quantity 5 L

ICAO/IATA

ERG Code 3L

Limited quantity 10 L

ADN

Classification Code F1

Limited quantity 5 L

ventilation VE01

Special precautions for users

Special precautions No information available

14.7. Maritime transport in bulk according to IMO instruments

Transport in bulk according to Annex II of MARPOL and the IBC Code not applicable

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

Regulation (EC) No. 1907/2006 (REACH)

Regulation (EC) No. 1272/2008 (CLP)

Regulation (EU) No. 2020/878

Directive 88/642/EEC

Directive 98/24/EC

Directive 1999/92/EC

Directive 2012/18/EU

The mixture is subject to restrictions on use, see Annex XVII of the Regulation 1907/2006/EC (REACH): Column 1, n°3; Column 1, n° 40.

European Union**National regulatory information****The United Kingdom**

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

Former date -

Revision date 05-Feb-2025

Version: 1

Ireland

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

15.2. Chemical safety assessment

Chemical Safety Assessment

Yes

Exposure scenario

Relevant information for risk control are communicated in the form of exposure scenario attached to the safety data sheet.

SECTION 16: Other information**Full text of H-Statements referred to under sections 2 and 3**

H226 - Flammable liquid and vapour

H304 - May be fatal if swallowed and enters airways

H312 - Harmful in contact with skin

H314 - Causes severe skin burns and eye damage

H315 - Causes skin irritation

H317 - May cause an allergic skin reaction

H318 - Causes serious eye damage

H319 - Causes serious eye irritation

H332 - Harmful if inhaled

H334 - May cause allergy or asthma symptoms or breathing difficulties 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

H373 - May cause damage to organs through prolonged or repeated exposure

H412 - Harmful to aquatic life with long lasting effects

EUH071 - Corrosive to the respiratory tract

EUH208 - May produce an allergic reaction

Training Advice

Handle in accordance with good industrial hygiene and safety practice To avoid risks to human health and the environment, comply with the instructions for use

Sources of key data used to compile the datasheet

ECHA

Revision date

05-Feb-2025

Revision Note**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

Scenario 1: Manufacturing of UP/VE resins and formulated resins (Gelcoat, Coulour Paste, Putty, Bonding paste/Adhesive) (ES1)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.

The following scenarios contribute to the scenario *Manufacturing of UP/VE resins and formulated resins (Gelcoat, Coulour Paste, Putty, Bonding paste/Adhesive)*.

This document has been prepared using REACH-Practical-Guide-on-Safe-Use-Information-for-Mixtures-under-REACH-The-LCID-Methodology, considering exposure scenario of relevant raw materials contained in the mixture.

The corresponding release to the environment, exposure of workers resulting from these contributing scenarios is summarized below.

Table 1. Description of ES 1

	(ES1)
	PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Chemical production where opportunity for exposure arises PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact) PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC 9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC 15 - Use of laboratory reagents in small scale laboratories

[illegible]

	goods, indoor and outdoor; Raw material assembly and charging; dispensing of liquids and solids via pipeline;
	Use bulk or semi-bulk handling systems. Drain down and flush system prior to equipment break-in or maintenance. Provide extract ventilation to points where emissions occur. Ensure good work practices are implemented. Provide basic employee training to prevent/minimize exposures. Use suitable chemically resistant gloves, tested to EN374. Use suitable eye protection.

[illegible]

[illegible]

	raw material dispensing of liquids and solids manually from bulk storage or packed goods into blending tank.
	Provide extract ventilation to points where emissions occur. Ensure good work practices are implemented. Provide basic employee training to prevent/minimize exposures. Use suitable chemically resistant gloves, tested to EN374. Use suitable eye protection. In case of potential exposure wear a suitable respiratory protection with adequate effectiveness.

	Avoid dip sampling. Ensure good work practices are implemented. Provide basic employee training to prevent/minimize exposures. Use suitable chemically resistant gloves, tested to EN374. Use suitable eye protection. In case of potential exposure wear a suitable respiratory protection with adequate effectiveness.

	Transfer from/pouring from containers; Mixing operations (open systems). Mixing liquid and solid components / into final formulated resin in blending vessel
	Keep lids of containers closed during blending. Ensure good work practices are implemented. Provide basic employee training to prevent/minimize exposures. Use suitable chemically resistant gloves, tested to EN374. Use suitable eye protection. Wear suitable coveralls to prevent exposure to the skin. In case of potential exposure wear a suitable respiratory protection with adequate effectiveness.

[illegible]

[illegible]

[illegible]

	Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable chemically resistant gloves, tested to EN374. Use suitable eye protection.
	Quality control work of samples from reactor and blending vessel. R&D work including handling of samples from 1 kg to 1 drum.
	Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374.

Scenario 2: FRP manufacturing in an industrial setting, using UP/VE resins and/or formulated resins (gelcoat, bonding paste, putty etc.) (ES2)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.

The following scenarios contribute to the scenario *FRP manufacturing in an industrial setting, using UP/VE resins and/or formulated resins (gelcoat, bonding paste, putty etc.)*.

This document has been prepared using REACH-Practical-Guide-on-Safe-Use-Information-for-Mixtures-under-REACH-The-LCID-Methodology, considering exposure scenario of relevant raw materials contained in the mixture.

The corresponding release to the environment, exposure of workers resulting from these contributing scenarios is summarized below.

Table 2. Description of ES 2

	putty etc.) (ES2)
	PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact) PROC 7 - Industrial spraying PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 10 - Roller application or brushing PROC 13 - Treatment of articles by dipping and pouring PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation PROC 15 - Use of laboratory reagents in small scale laboratories

[illegible]

[illegible]

	Transfer from/pouring from containers; Mixing operations (open systems). Loading of mixing equipment; Preparation of material for application; (liquid products) - batch, indoor
	Provide basic employee training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. In case of potential exposure wear a suitable respiratory protection with adequate effectiveness.

	Casting and mixing operations in (semi-) open containers. Examples are centrifugal casting, casting of polymer concrete and artificial marble and the manufacturing of SMC / BMC/ TMC, etc
	exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. In case of potential exposure wear a suitable respiratory protection with adequate effectiveness.

	resin in blending vessel; Examples are gelcoat blending and compounding, formulation of repair putties, bonding pastes, chemical anchoring, etc
	Provide basic employee training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. In case of potential exposure wear a suitable respiratory protection with adequate effectiveness.
	All open mould applications where resins is applied by automated spraying or by robot in a spray cabin without direct worker involvement. Examples are spray lamination, gelcoat spraying and “chop-hoop” filament winding

	Dispose of empty containers and wastes safely Ensure good work practices are implemented Provide basic employee training to prevent/minimize exposures Wear suitable coveralls to prevent exposure to the skin Use suitable eye protection. Wear suitable face shield Wear chemically resistant gloves tested to EN374, in combination with intensive management supervision control. In case of potential exposure wear a suitable respiratory protection with adequate effectiveness.
	All open mould applications where resins is applied by manual spraying in an open work environnement. Examples are spray lamination, gelcoat spraying and “chop-hoop”filament winding

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[illegible]

	Ensure good work practices are implemented Provide basic employee training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. In case of potential exposure wear a suitable respiratory protection with adequate effectiveness.
	All open mould applications where resins is applied by brushing, rolling and other low energy spreading operations; Examples are handlamination, gelcoatbrushing, filament winding

	tested Dispose of empty containers and wastes safely Ensure good work practices are implemented Provide basic employee training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin In case of potential exposure wear a suitable respiratory protection with adequate effectiveness.
	Roller, spreader, flow application Application of repair putties; Application of bonding pastes / adhesives.

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	exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. In case of potential exposure wear a suitable respiratory protection with adequate effectiveness.
	compression, extrusion or pelletisation; Treatment by heating; Batch processes at elevated temperatures. Processes where curing of UP / VE resins takes place at high temperature. Examples are pultrusion with injection dies and processing of SMC / BMC / TMC, etc

	exposures In case of potential exposure: Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. In case of potential exposure wear a suitable respiratory protection with adequate effectiveness.
	work including handling of samples from 1 kg to 1 drum
	exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374.

Scenario 3: FRP manufacturing in a professional setting, using UP/VE resins and/or formulated resins (gelcoat, bonding paste, putty etc.) (ES3)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.

The following scenarios contribute to the scenario *FRP manufacturing in a professional setting, using UP/VE resins and/or formulated resins (gelcoat, bonding paste, putty etc.)*.

This document has been prepared using REACH-Practical-Guide-on-Safe-Use-Information-for-Mixtures-under-REACH-The-LCID-Methodology, considering exposure scenario of relevant raw materials contained in the mixture.

The corresponding release to the environment, exposure of workers resulting from these contributing scenarios is summarized below.

Table 2. Description of ES 3

[illegible]

[illegible]

[illegible]

	Preparation of material for application (liquids) - transfer of material from one container to another; Formulating / blending resins, gelcoats, bonding pastes, putties etc. in blending vessels
	Ensure good work practices are implemented Provide basic employee training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. In case of potential exposure wear a suitable respiratory protection with adequate effectiveness.

[illegible]

[illegible]

[illegible]

[illegible]

	All open mould applications where resins is applied by manual spraying in an open work environment. Examples are spray lamination, gelcoat spraying and “chop-hoop” filament winding
	Ensure good work practices are implemented Provide basic employee training to prevent/minimize exposures Use suitable eye protection. Wear suitable face shield Wear suitable coveralls to prevent exposure to the skin. Wear chemically resistant gloves, tested to EN374, in combination with intensive management supervision control. Wear a suitable respiratory protection with adequate effectiveness.