POLYESTER RESIN 11C762O

Product Name:	**Polyester Resin 11C762O** **1133843 Rev.1**
Revision Date:	28-July-2023 **According to Regulation (EC) No. 1907/2006**

1. Identification of the substance/mixture and of the company/undertaking

1.1. Product Identifier

Product Name: Polyester Resin 11C762O

Chemical Name: Polyester Resin

Pure Substance/Mixture: Mixture

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

Casting Resin

1.3. Details of the supplier of the safety data sheet

Tricel Composites (GB) Limited

Unit A, Foxway,
Off Atkinson Street,
Leeds, West Yorkshire,
LS10 1PS.
Tel: +44 (0)113 270 3133

Tricel Composites (NI) Limited

Unit 4, Milltown Ind. Estate, Greenan Road. Warrenpoint, Newry
Co. Down,
BT34 3FN.
Tel: +44 (0)284 175 3738

1.4. Emergency Telephone Number

Emergency medical information: 8am-10pm (seven days) contact National Poisons Information Centre, Beaumont Hospital, Dublin 9 DOV2NO, Ireland.
Telephone Number: +353 (0)1 809 2166

Leeds:	**Newry:**
Tel: +44 (0)113 270 3133	Tel: +44 (0)284 175 3738

1.4.1. 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)

2. Hazards Identification

2.1. Classification of the substance or mixture

Classification of the substance or mixture - GHS/CLP (nº 1272/2008)

Skin Corrosion/Irritation	Category 2 - (H315)
Serious Eye Damage/Eye Irritation	Category 2 - (H319)
Reproductive Toxicity	Category 2 - (H361d)
Specific Target Organ Toxicity (Single Exposure)	Category 3 - (H335)
Specific target organ toxicity - repeated exposure	Category 1 - (H372)
Chronic Aquatic Toxicity	Category 3 - (H412)
Flammable liquids	Category 3 - (H226)

2.2. Label elements

Signal Word: Danger

Contains: Styrene

2.2.1. Hazard Statements

H315 - Causes skin irritation

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

2.2.2. Physical Hazards

H226 - Flammable liquid and vapour

2.2.3. Additional EU H-Phrases

EUH208 - Contains alpha-methyl styrene, cobalt octoate. May produce an allergic reaction.

2.2.4. 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

3. Composition/Information on Ingredients

3.1. Hazardous components

Chemical Name	EC-No	REACH Registration Number	CAS-No	Weight percent	GHS Classification	M-Factor (acute)	M-Factor (chronic)	Concen-tration limit (%)
Styrene	202-851-5	01-2119457861-32	100-42-5	25 - 35	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)			
Methyl methacrylate	201-297-1	01-2119452498-28	80-62-6	1 - 10	Flam. Liq. 2 (H225) STOT SE 3 (H335) Skin Irrit. 2 (H315) Skin Sens. 1 (H317)			
Propylidynetrimethanol	201-074-9	01-2119486799-10	77-99-6	0.1 - < 1	Repr. 2 (H361fd)			
alpha-methyl styrene	202-705-0	01-2119472426-35	98-83-9	0.1 - < 1	Flam. Liq. 3 (H226) Asp. Tox. 1 (H304) Skin Sens. 1B (H317) Eye Irrit. 2 (H319) STOT SE 3 (H335) Repr. 2 (H361d) Aquatic Chronic 2 (H411)			
Quaternary ammonium compounds,	270-325-2	01-2119983287-23	68424-85-1	0.1 - < 1	Acute Tox. 4 (H302) Skin Corr. 1B (H314) Eye Dam. 1 (H318) Aquatic Acute 1 (H400)	10	1	

benzyl-C12-16-alkyldi methyl, chlorides					Aquatic Chronic 1 (H410)			
cobalt octoate	205-250-6	01-2119524678-29	136-52-7	0.01 - < 0.1	Skin Sens. 1A (H317) Eye Irrit. 2 (H319) Repr. 1B (H360Fd) Aquatic Acute 1 (H400) Aquatic Chronic 3 (H412)	1		

3.1.1. 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.

4. First Aid Measures

4.1. Other Hazards

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 produce an allergic reaction.

Inhalation: Harmful: danger of serious damage to health by prolonged exposure through inhalation Irritating to respiratory system. May produce an allergic reaction.

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

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

Notes to physician No information available

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

5.2. Special Hazards arising from substance or mixture

Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases

5.3. Advice for Firefighters

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

5.4. Other information

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

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. 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

6.1.2. 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

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

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

7. Handling and Storage

7.1. Precautions for safe handling

7.1.1. 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.

7.1.2. Prevention of fire and explosion

Keep away from open flames, hot surfaces and sources of ignition Empty containers may contain flammable or explosive vapours.

7.1.3. 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

- 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

Packaging material: Metallic GRP Tanks (Reinforced Glass Polyester)

Unsuitable materials for containers: Copper alloys, Bronze, Zinc

8. Exposure Controls/Personal Protection

8.1. Control Parameters

8.1.1. Occupational Exposure limits

Chemical Name	European Union	ACGIH OEL (Ceiling)	The United Kingdom	Ireland
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/m3 TWA 100 ppm TWA 430 mg/m3	TWA 20 ppm TWA 85 mg/m3 STEL 40 ppm STEL 170 mg/m3
Methyl methacrylate 80-62-6		TWA 50 ppm, STEL 100 ppm (2007)	STEL 100 ppm STEL 416	TWA 50 ppm STEL 100 ppm

			mg/m3 TWA 50 ppm TWA 208 mg/m3	
alpha-methyl styrene 98-83-9	TWA 50 ppm TWA 246 mg/m3 STEL 100 ppm STEL 492 mg/m3	TWA 50 ppm	STEL 100 ppm STEL 491 mg/m3 TWA 50 ppm TWA 246 mg/m3	TWA 50 ppm TWA 246 mg/m3 STEL 100 ppm STEL 490 mg/m3
cobalt octoate 136-52-7		0.02 mg/m³	³ STEL 0.3 mg/m3 TWA 0.1 mg/m3 Sen+	TWA 0.1 mg/m3 Sensitizer

Special hazards arising from the substance or mixture

8.1.2. Biological standards Derived No Effect Level (DNEL)

Derived No Effect Level (DNEL)				
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	
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	

Propylidynetrimethanol (77-99-6)

Type	DNEL oral	DNEL dermal	DNEL inhalation	Remark
Workers - Long Term - Systemic effect		0.94 mg/kg bw/day	3.3 mg/m³	
General Population - Long Term - Systemic effect	0.34 mg/kg bw/day	0.34 mg/kg bw/day	0.58 mg/m³	

alpha-methyl styrene (98-83-9)

Type	DNEL oral	DNEL dermal	DNEL inhalation	Remark
Workers - Long Term - Systemic effect		2.8 mg/kg bw/day	246 mg/m3	
Workers - Acute Short Term - Local effect			492 mg/m3	
Workers - Long Term - Local effect		0.105 mg/cm²		
General Population - Long Term - Systemic effect	0.1 mg/kg bw/day	1.4 mg/kg bw/day	4.83 mg/m³	
General Population - Long Term - Local effect		0.052 mg/cm²		

cobalt octoate (136-52-7)

Type	DNEL oral	DNEL dermal	DNEL inhalation	Remark
Workers - Long Term - Local effect			235.1 µg/m3	

General Population - Long Term - Systemic effect	175 µg/kg bw/day			
General Population - Long Term - Local effect			37 µg/m3	

8.1.3. Predicted No Effect Concentration (PNEC)

PNEC Component		
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
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
alpha-methyl styrene (98-83-9)		
Exposure	Type	PNEC

Exposure	Type	PNEC
Fresh water	PNEC Aqua	0.008 mg/L
Marine water	PNEC Aqua	0.001 mg/L
Intermittent use/release	PNEC Aqua	0.01645 mg/L
Fresh water	PNEC Sediment	0.583 mg/kg sediment dw
Marine water	PNEC Sediment	0.0583 mg/kg sediment dw
	PNEC Soil	0.112 mg/kg soil dw
	PNEC STP	66.15 mg/L
cobalt octoate (136-52-7)		
Exposure	Type	PNEC
Fresh water	PNEC Aqua	0.62 µg/L
Marine water	PNEC Aqua	2.36 µg/L
STP microorganisms	PNEC STP	0.37 mg/L
Fresh water	PNEC Sediment	53.8 mg/kg sediment dw
Marine water	PNEC Sediment	69.8 mg/kg sediment dw
Terrestrial Compartment	PNEC Soil	10.9 mg/kg soil dw

8.2. Exposure Controls

8.2.1. 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.

8.2.2. 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

Do not allow material to contaminate ground water system

9. Physical and Chemical Properties

9.1. Exposure Controls/Personal Protection

Property	Values	Remark
Physical state	Liquid	
Colour	Blue	
Appearance		No data available
Particle size		No data available

Odour	Pungent	
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
Softening point		No data available
Boiling point	100 - 146 °C	Values related to styrene
Flash point	26 °C	(ISO 3679)
Flammability		No data available
Upper	12.5%	Values related to styrene
Lower	1,1%	Values related to styrene
Vapour pressure	1 hPa kPa	@20 °C 25°C Values related to styrene
Vapour density	3.6 - 3.94 (Air = 1)	Values related to styrene
Density	1.08 - 1.12 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: n-octanol/water	3	Values related to styrene
Autoignition temperature	430 - 490 °C	(DIN 51794)
Decomposition temperature		No data available
Viscosity, kinematic	273 - 364 mm2/s	
Viscosity, dynamic	300 - 400 mPa.s	23 °C Brookfield Test Method

9.2. Other Information

9.2.1. 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
Oxidising Properties		No data available
Organic peroxides		No data available
Corrosive to metals		No data available
Desensitised explosives		No data available

9.2.2. Other safety characteristics

Property	Values	Remark
Sensitivity to Mechanical Impact		No data available
SAPT (self-accelerating		No data available
polymerisation temperature) Formation of explosible dust/air		No data available
mixtures Acid/alkaline reserve		No data available
Evaporation rate	0.49 3.1	(BuAc = 1)
Miscible Conductivity		No data available
Corrosiveness		No data available
Gas group		
Redox potential		
Photocatalytic properties		

10. Stability and Reactivity

10.1. Reactivity

Product may ignite and burn at temperatures exceeding the flash point

10.2. Chemical 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

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

10.5. Incompatible materials

Strong oxidizing agents, Peroxides, Reducing agents.

10.6. Hazardous decomposition Products

Incomplete combustion and thermolysis produces potentially toxic gases such as carbon monoxide and carbon dioxide.

11. Toxicological Information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

11.1.1. Inhalation

- Harmful: danger of serious damage to health by prolonged exposure through inhalation
- Irritating to respiratory system May produce an allergic reaction

11.1.2. Ingestion

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

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation	Read-across (Analogy)
Styrene 100-42-5	5000 mg/kg (Rat)	> 2000 mg/kg bw (Rat) 24h OECD 402	11.8 mg/L (Rat) 4h CSR	
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	

alpha-methyl styrene 98-83-9	4900 mg/kg (Rat) OECD GHS	14560 mg/kg bw (Rabbit) OECD GHS	22.85 mg/L (Rat) 6h Vapour 41600 mg/m3 (Rat) 8h Vapour	
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethy l, chlorides 68424-85-1	344 mg/kg bw (Rat) No guideline followed	3340 mg/kg bw (Rabbit) No guideline followed	21500 mg/L (Rat) 1h No guideline followed	
cobalt octoate 136-52-7	3129 mg/kg/bw (Rat) OECD 425	> 2000 mg/kg bw (Rat) OECD 402		

11.1.3. Skin corrosion/irritation

Chemical Name	Skin corrosion/irritation	Read-across (Analogy)
Styrene 100-42-5	Irritating to skin in vivo assay rabbit	
Methyl methacrylate 80-62-6	Irritating to skin rabbit Draize Test	
alpha-methyl styrene 98-83-9	Mild skin irritation rabbit Classification of corrosive hazards, Federal Register, Vol 37, No 57, §173.240	
cobalt octoate 136-52-7	No skin corrosion in vitro study OECD 431 EU Method B. 40	

11.1.4. Serious Eye Damage/Eye Irritation

Chemical Name	Serious Eye Damage/Eye Irritation	Read-across (Analogy)
Styrene 100-42-5	Irritating to eyes in vivo assay rabbit	Styrene 100-42-5
Methyl methacrylate 80-62-6	Mild eye irritation rabbit Draize Test	Methyl methacrylate 80-62-6

alpha-methyl styrene 98-83-9	Irritating to eyes rabbit	alpha-methyl styrene 98-83-9
cobalt octoate 136-52-7	Moderate eye irritation OECD 437 EU Method B.47 Irritating to eyes rabbit OECD 405	cobalt octoate 136-52-7

11.1.5. Respiratory or skin sensitisation

May produce an allergic reaction.

Chemical Name	Respiratory or skin sensitisation	Read-across (Analogy)
Styrene 100-42-5	Does not cause skin sensitization Does not cause respiratory sensitization CSR	
Methyl methacrylate 80-62-6	May cause sensitisation by skin contact mouse OECD 429	
Propylidynetrimethanol 77-99-6	Does not cause skin sensitization in vivo assay mouse OECD 429	
alpha-methyl styrene 98-83-9	May cause sensitisation by skin contact mouse OECD 429 EU Method B.42	
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides 68424-85-1	Does not cause skin sensitization in vivo assay guinea pig OECD 406	
cobalt octoate 136-52-7	May cause sensitisation by skin contact in vivo assay mouse OECD 429	

11.1.6. 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	
Methyl methacrylate 80-62-6	negative In vitro gene mutation study in bacteria OECD 471	
Propylidynetrimethanol 77-99-6	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	
alpha-methyl styrene 98-83-9	negative In vitro gene mutation study in bacteria (S. typhimurium TA 1535, TA 1537, TA 98 and TA 100) (Escherichia coli WP2 uvrA) similar to OECD 471 OECD 472	
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides 68424-85-1	negative In vitro gene mutation study in bacteria Salmonella sp. OECD 471	
cobalt octoate 136-52-7	negative In vitro gene mutation study in bacteria (S. typhimurium TA 1535, TA 1537, TA 98, TA100 and TA 102) OECD 471	Cas N°: 68956-82-1, 14024-48-7
Chemical Name	In vitro Mammalian Cell Gene Mutation Test	Read-across (Analogy)

Styrene 100-42-5	Ambiguous In vitro gene mutation study in mammalian cells hamster OECD 476	
Propylidynetrimethanol 77-99-6	negative In vitro gene mutation study in mammalian cells hamster OECD 476	
alpha-methyl styrene 98-83-9	negative In vitro gene mutation study in mammalian cells hamster similar to OECD 476	
cobalt octoate 136-52-7	negative In vitro gene mutation study in mammalian cells mouse OECD 476	Cas N°: 7440-48-4, 1308-06-1, 10124-43-3, 12016-80-7
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	
Propylidynetrimethanol 77-99-6	negative In vitro gene mutation study in mammalian cells hamster OECD 473	
alpha-methyl styrene 98-83-9	negative In vitro gene mutation study in mammalian cells hamster similar to OECD 473	
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides 68424-85-1	negative Chromosome aberration test in vitro Human lymphocytes OECD 473	

In Vivo Assay

Chemical Name	Unscheduled DNA Synthesis (UDS)	Read-across (Analogy)
Styrene 100-42-5	negative mouse OECD 486 OECD 474	
Methyl methacrylate 80-62-6	negative mouse OECD 478	
alpha-methyl styrene 98-83-9	negative mouse similar to OECD 474	
cobalt octoate 136-52-7	negative rat OECD 474 OECD 475	Cas N°: 68956-82-1, 14024-48-7, 10026-24-1

11.1.7. Carcinogenicity

Carcinogenicity				
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
Methyl methacrylate (80-62-6)				
Routes of Exposure	Method	Species	Dose	Evaluation
Oral	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
Oral	No information available	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
alpha-methyl styrene (98-83-9)				
Routes of Exposure	Method	Species	Dose	Evaluation

Oral	similar to OECD 451	mouse rat	LOAEC (male/female) 105 weeks = 100 ppm	negative

11.1.8. Reproductive toxicity

Reproductive toxicity				
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
Methyl methacrylate (80-62-6)				
Routes of Exposure	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	negative

			toxicity) = 400 mg/kg bw/day (male/female)	
Propylidynetrimethanol (77-99-6)				
Routes of Exposure	Method	Species	Dose	Evaluation
Oral	OECD 443	rat	NOAEL (general toxicity) = 740 ppm NOAEL (reproductive toxicity) = 2200 ppm	positive
Oral	OECD 421	rat	NOAEL (parental, reproduction & developmental toxicity) > 6000 ppm	negative
alpha-methyl styrene (98-83-9)				
Routes of Exposure	Method	Species	Dose	Evaluation
Oral	OECD 422	rat	NOEL (parental females) = 200 mg/kg bw/day NOEL (parental males) = 1000 mg/kg bw/day	negative
Inhalation	similar to OECD 416	rat	NOAEC (systemic toxicity) male/female = 0.21 mg/L NOAEC (reproductive toxicity) male/female = 2.1 mg/L	negative
cobalt octoate (136-52-7)				
Routes of Exposure	Method	Species	Dose	Evaluation

Oral	Read-across (Analogy) Cas N°: 7440-48-4 OECD 422	rat	NO(A)EL (P&F1) 28d = 30 mg/kg bw/day	positive

11.1.9. Developmental Toxicity

Suspected of damaging the unborn child.

Developmental Toxicity				
Styrene (100-42-5)				
Routes 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
Methyl methacrylate (80-62-6)				
Routes of Exposure	Method	Species	Dose	Evaluation
Inhalation	OECD 414	rat	LOEC (maternal toxicity) = 0.41 mg/L air NOAEC (fetotoxicity) >=	negative

			8.3 mg/L air NOAEC (teratogenicity) >= 8.3 mg/L air	
Oral	OECD 414	rabbit	NOAEL (maternal toxicity) = 50 mg/kg bw/day NOAEL (developmental toxicity) = 450 mg/kg bw/day	negative
Propylidynetrimethanol (77-99-6)				
Routes of Exposure	Method	Species	Dose	Evaluation
Oral	similar to OECD 414 Read-across (Analogy) Cas N°: 100-42-5	rabbit	NOAEL (maternal & developmental toxicity) >= 450 mg/kg bw/day	negative
alpha-methyl styrene (98-83-9)				
Routes of Exposure	Method	Species	Dose	Evaluation
Inhalation	similar to OECD 414 Read-across (Analogy) Cas N°: 100-42-5	rat rabbit	LOAEC (maternal toxicity) = 297 ppm NOAEC (developmental toxicity) = 600 ppm LOAEL (maternal toxicity) = 180 mg/kg bw/day NOAEL (developmental toxicity) = 300 mg/kg bw/day NOAEC (maternal toxicity) = 600 ppm	positive

11.1.10. Specific target organ toxicity Single Exposure

- May cause irritation of respiratory tract

STOT -single exposure				
alpha-methyl styrene (98-83-9)				
Routes of Exposure	Method	Species	Dose	Remarks
Inhalation	No information available		C >= 600 ppm	

11.1.11. 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				
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	
Methyl methacrylate (80-62-6)				
Routes 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 available	rat	NOAEC (90d) = 1000 ppm	
alpha-methyl styrene (98-83-9)				
Routes of Exposure	Method	Species	Dose	Remarks
Inhalation	OECD 453	rat	NOAEC (male/female) 14 weeks = 300 ppm	
cobalt octoate (136-52-7)				
Routes of Exposure	Method	Species	Dose	Remarks

Oral	Read-across (Analogy) cobalt dichloride hexahydrate OECD 408	rat	NOAEL (90d) = 3 mg/kg bw/day	

11.1.12. 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

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

12.1.1. Acute aquatic toxicity - Component Information

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates.	Toxicity to fish	Toxicity to microorganisms
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
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

alpha-methyl styrene 98-83-9	EC50 (72h) = 11.441 mg/L (Desmodesmus subspicatus) NOEC (72h) = 2.26 mg/L (Desmodesmus subspicatus) LOEC (72h) = 8.3 mg/L (Desmodesmus subspicatus) OECD 201, EU Method C.3	EC50 (48h) = 1.645 mg/L (Daphnia magna) EC10 (48h) = 0.99 mg/L (Daphnia magna) NOEC (48h) = 0.64 mg/L (Daphnia magna) LOEC (48h) = 1.21 mg/L (Daphnia magna) OECD 202, EU Method C.2	LC50 (96h) = 2.97 mg/L (Danio rerio) NOEC (96h) = 2.13 mg/L (Danio rerio) LOEC (96h) = 3.19 mg/L (Danio rerio) OECD 203, EU Method C.1	EC10 (3h) = 661.5 mg/L (Activated sludge of a predominantly domestic sewage) EC50 (3h) > 2 000 mg/L (Activated sludge of a predominantly domestic sewage) OECD 209, EU Method C.11
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides 68424-85-1	ErC50 (72h) = 0.049 mg/L (Pseudokirchneriella subcapitata) OECD 201	EC50 (48h) = 0.016 mg/L (Daphnia magna) OECD 202	LC50 (96h) = 0.28 mg/L (Pimephales promelas) US-EPA	EC50 = 7.75 mg/L (Activated sludge) OECD 209
cobalt octoate 136-52-7	EC50 (72h) = 144 µg Codiss./L (Pseudokirchneriella subcapitata) NOEC (72h) = 32.2 µg./L (Pseudokirchneriella subcapitata) LOEC (72h) = 52.7 µg Codiss./L (Pseudokirchneriella subcapitata) OECD 201		LC50 (96h) = 1.512 mg/L (Oncorhynchus mykiss) NOEC (96h) = 0.939 mg/L (Oncorhynchus mykiss) LOEC (96h) = 1.577 mg/L (Oncorhynchus mykiss) ASTM guideline (1996)	EC10 (30 min) = 3.73 mg/L (Activated sludge) EC50 (30 min) = 120 mg/L (Activated sludge) Read across with Cas N°: 7646-79-9 OECD 209

12.1.2. Chronic aquatic toxicity - Component Information

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates.	Toxicity to fish	Toxicity to microorganisms
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		
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
alpha-methyl styrene 98-83-9		NOEC (21d) = 0.401 mg/L (Daphnia magna) LC50 (21d) = 1.56 mg/L (Daphnia magna) EC50 (21d) = 1.11 mg/L (Daphnia magna) OECD 211		
cobalt octoate 136-52-7	EC50 (7d) = 90.1 µg./L (Lemna minor) NOEC (7d) = 3.0 µg/L (Lemna minor) LOEC (7d) = 8.8 µg/L (Lemna minor) OECD 221	NOECR (21d) = 60.8 µg./L (Daphnia magna) LC50 (21d) = 121.3 mg/L (Daphnia magna) LOECR (21d) = 93.3 µg Codiss./L (Daphnia magna) OECD 211		

12.1.3. Effects on terrestrial organisms - Component Information

Acute toxicity				
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides (68424-85-1)				
Acute toxicity	Test Method	Species	Values	Remarks
Other plants	OECD 208	No information available	EC50 = 277 - 1900 mg/kg bw (14d)	
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	
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides (68424-85-1)				
Chronic toxicity	Test Method	Species	Values	Remarks
Toxicity to soil dwelling organisms.	OECD 216	Soil	EC50 > 1000 mg/kg bw (28d)	
Toxicity to terrestrial organisms.	OECD 207	Eisenia foetida	LC50 = 7070 mg/kg bw (14d)	

12.2. Persistence and Degradability

Chemical Name	Degradation	Evaluation
Propylidynetrimethanol 77-99-6	DT50 > 1 year (25°C)	Stable
alpha-methyl styrene 98-83-9	Stable (pH = 4, 7, 9) 25°C OECD 111	Stable

Chemical Name	Biodegradation	Evaluation
Styrene 100-42-5	87% (20d) similar to OECD 301D	Readily Biodegradable
Methyl methacrylate 80-62-6	94.3 % (14d) OECD 301 C	Readily Biodegradable
Propylidynetrimethanol 77-99-6	6% (28d) Similar to OECD 301 E	Not Readily Biodegradable
alpha-methyl styrene 98-83-9	21% (28d) OECD 301F, EU Method C.4-D 56% (28d) OECD 301D, EU Method C.4-E	Not Readily Biodegradable
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides 68424-85-1	95.5% (28d) OECD 301B	Readily Biodegradable
cobalt octoate 136-52-7	60% (> 10d), OECD 301 B	Readily Biodegradable

12.3. Bio-accumulative 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
Propylidynetrimethanol (77-99-6)		
Method	Species	Bioconcentration factor (BCF)
OECD 305 C	Cyprinus carpio	BCF < 17
alpha-methyl styrene (98-83-9)		
Method	Species	Bioconcentration factor (BCF)
OECD 305 C	Cyprinus carpio	BCF (56d) = 15 - 140 (25°C) C = 0.3 mg/L BCF (56d) = 12 - 113 (25°C) C = 0.03 mg/L

Chemical Name	log Pow
Styrene 100-42-5	3
Methyl methacrylate 80-62-6	1.38
Propylidynetrimethanol 77-99-6	-0.47
alpha-methyl styrene 98-83-9	3.48

12.4. Mobility in Soil

Chemical Name	LogKoc	Koc
Styrene 100-42-5	2.55	352
Methyl methacrylate 80-62-6	0.94 - 1.86	-
alpha-methyl styrene 98-83-9	2.84	892

12.5. Results in PBT and vPvB Assessment

Chemical Name	PBT	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).
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).
Propylidynetrimethanol 77-99-6	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).
alpha-methyl styrene 98-83-9	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).

12.6. Endocrine disrupting Properties

No information available

12.7. Other Adverse Effects

None known

13. Disposal Considerations

13.1. 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

13.2. Contaminated Packaging

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

13.3. 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.

14. Transport Information

14.1. UN number or ID number

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

14.2. 14.2. UN number or ID number

- 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 : UN1866, RESIN SOLUTION, 3, PG III
- ADN : Resin solution; UN1866, RESIN SOLUTION, 3, PG III

14.3. 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. 14.4. Packing group

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

14.5. 14.5. Environmental hazards

- ADR/RID No
- IMDG/IMO No
- Marine pollutant No
- ICAO/IATA No
- ADN No

14.6. 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: No information available

14.7. 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

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, nº 3; Column 1, nº 40.

European Union

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

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.

16. Other Information

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

H226 - Flammable liquid and vapour
H302 - Harmful if swallowed
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
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
H360Fd - May damage fertility. Suspected of damaging the unborn child
H361d - Suspected of damaging the unborn child
H372 - Causes damage to organs through prolonged or repeated exposure if inhaled
H400 - Very toxic to aquatic life
H412 - Harmful to aquatic life with long lasting effects
H413 - May cause long lasting harmful effects to aquatic life
EUH208 - May produce an allergic reaction
Training Advice: Handle in accordance with good industrial hygiene and safety practice. To avoid risks to man and the environment, comply with the instructions for use.

16.2. Sources of key data used to compile the datasheet:

ECHA

- Former date 18 Nov 2021
- Revision date 28-Jul-2023

Revision Note: New ANNEX II Regulation (EU) No. 2020/878

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