Material Safety Data Sheet
MECHSTER™ 1620(O)G

Revision No.: 2.0 Revision Date: 21 June 2016

Safety data sheet in accordance with regulation (EC) No. 1907/2015

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Description:	**MECHSTER ™ 1620(O)G**
Chemical Family	Unsaturated Polyester Resin
Chemical Composition	Orthophthalic acid based polyester resin solution in Styrene

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

Intended Use	General-purpose polyester resin
Sector of Use	SU 3 - Industrial uses SU 12 - Manufacture of plastics products, including compounding and conversion SU 22 - Professional uses
Product Categories	PC 32 - Polymer Mixtures and Compounds
Process Categories	PROC 1 - Use in closed process, no likelihood of exposure PROC 3 - Use in closed batch process (synthesis or formulation); Industrial setting PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5 - Mixing or blending in batch processes for formulation of mixtures and articles(multistage and/or significant contact) PROC 6 - Calendaring Operation PROC 7 - Industrial spraying PROC 8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC 8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC 10 - Roller application or brushing PROC 11 - Non industrial spraying PROC 13 - Treatment of articles by dipping and pouring PROC 14 - Production of mixtures or articles by tableting, compression, extrusion, palletisation PROC 15 - Use as a laboratory reagent PROC 19 - Hand-Mixing with intimate contact and only PPE available PROC 22 - Potentially closed processing operations with minerals/metals at high Temperature
Uses advised against	No information available

1.3. Details of the supplier of the safety data sheet

Manufacturer:
MECHEMCO RESINS PVT. LTD.
(Mechemco)
D-36/3, T.T.C INDUSTRIAL AREA,
MIDC,TURBHE,
NAVI MUMBAI –400 613.
INDIA.

Email	techserv@mechemco.com
1.4. Emergency telephone number	+91-22-27682720 / 27632153 /27632154 / 27682721

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008

Flammable liquid 3	H226
Skin corrosion/irritation 2	H315
Skin Sensitivity 1	H317
Serious eye damage/eye irritation 2	H319
Acute toxicity – Inhalation (Vapours) 4	H332
Specific target organ toxicity (single exposure) 3	H335
Carcinogen 2	H351
Reproductive Toxicity 2	H361d
Specific target organ toxicity (repeated exposure) 1	H372
Aquatic Chronic toxicity 3	H412

2.2. GHS Labelling Classification

Labelling according to Regulation (EC) 1272/2008 (CLP)

Signal Word Danger

Hazard Statements

H226	- Flammable liquid and vapour.
H304	- May be fatal if swallowed and enters airways.
H315	- Causes skin irritation.
H317	- May cause an allergic skin reaction.
H319	- Causes serious eye irritation.
H332	- Harmful if inhaled.
H335	- May cause respiratory irritation.
H351	- Suspected of causing cancer.
H361d	- Suspected of damaging the unborn child.
H372	- Causes damage to organs through prolonged or repeated exposure.
H412	- Harmful to aquatic life with long lasting effects.

Precautions
Preventive:

P210	- Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P243	- Take precautionary measures against static discharge.
P260	- Do not breathe dust/gas/mist/vapours.
P273	- Avoid release to the environment.
P280	- Wear protective gloves and eye/face protection.

Response:

P301 + P310	- IF SWALLOWED: Immediately call a POISON CENTER or doctor/Physician.
P302 + P352	- IF ON SKIN: Wash with plenty of soap and water.

P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water.
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove Contact lenses if present and easy to do. Continue rinsing.
P331 - Do not induce vomiting

Storage:
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.

Disposal:
P501 - Dispose of contents/container to hazardous or special waste collection point.

2.3. Other hazards
No information available.

3. COMPOSITION/INFORMATION ON HAZARDOUS INGREDIENTS

Component	EC No.	CAS-No	Weight %	Classification	EU - GHS Substance Classification	REACH Registration No.
Styrene	202-851-5	100-42-5	23-33	R10 Xn; R20-R48/20-65 Xi; R36/37/38	Skin Irrit. 2 (H315) Flam. Liq. 3 (H226) Eye Irrit. 2 (H319) Acute Tox. 4 (H332) STOT RE 1 (H372) STOT SE 3 (H335) Repr. 2 (H361d) Asp. Tox. 1 (H304) Aq. Chron. 3 (H412)	01-2119457861-32-XXXX

4. FIRST AID MEASURES

4.1. Description of first aid measures

General Information:
Show this safety data sheet to the Doctor in attendance. Adhere to personal protective measures when giving first aid. Remove soiled or soaked clothing immediately, do not allow to dry. Do not Breathe dust /fumes /gas/mist/vapours/spray.

Eye Contact:
Immediately flush eyes for at least 15 minutes. Get medical attention.

Skin contact:
Wash off with warm water and soap. Remove contaminated clothing and shoes. If skin irritation persists, call a physician. Wash contaminated clothing before reuse.

Ingestion:
Do not induce vomiting. This material may enter the lungs during vomiting. Never give anything by mouth to an unconscious person. Get immediate medical attention.

Inhalation:
Remove person to fresh air. Keep patient warm and at rest. If breathing is laboured, administer oxygen. If not breathing, give artificial respiration. Get medical attention immediately.

4.2. Most important symptoms and effects, both acute and delayed
Irritating to eyes, respiratory system and skin. Harmful by inhalation, in contact with skin and if swallowed.

4.3. Indication of immediate medical attention and special treatment needed Notes to Physician
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media
Suitable Extinguishing Media:
Carbon dioxide (CO_2), Foam, Dry Chemical, Water Spray

Extinguishing media which must not be used for safety reasons:
Do not use 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.
Flammable vapours may form explosive mixture with air. Vapours may travel to areas away from work site before igniting/flashing back to vapour source. Combustion may produce carbon monoxide, carbon dioxide, irritating or toxic vapours and gases. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

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

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures
Remove all sources of ignition. Evacuate personnel to safe areas. Avoid contact with the skin and the eyes. Use personal protective equipment. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. All equipment used when handling the product must be grounded.

6.2. Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Prevent product from entering drains.

6.3. Methods and material for containment and cleaning up
A vapour suppressing foam may be used to reduce vapours. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. For disposal according to local/national regulations (see section 3). Use clean non-sparking tools to collect absorbed material.

6.4. Reference to other sections
See Section 7 for information regarding safe handing. See section 8 foe personal protective measure and see section 13 for information regarding Waste Disposal.

7. HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Handling:

Do not breathe vapours or spray mist. Avoid contact with skin, eyes and clothing. Remove and wash contaminated clothing before re-use. Ensure adequate ventilation. Ground and bond containers when transferring material. Use spark-proof tools and explosion-proof equipment. Consult your supplier of promoters and catalysts for additional instructions on proper mixing and usage. Empty containers may retain product residue (liquid and/or vapour). Do not pressurize, cut, weld, braze, solder, drill, grind, or expose these containers to heat, flame, sparks, static electricity, or other sources of ignition as the container may explode and may cause injury or death. Empty drums should be completely drained and properly bunged. Empty drums should be promptly returned to a drum reconditioned or properly disposed. Do not use compressed air for filling, discharging or handling.

Hygiene Measures

When using, do not eat , drink or smoke. Provide regular cleaning of equipment, work area and clothing. Thoroughly wash hands during breaks and at the end of work-day.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from heat and sources of ignition. No smoking. Keep away from direct sunlight. Store it away from incompatible materials (Strong oxidizing agents, Peroxides and Reducing agents). Keep containers tightly closed in a cool, well-ventilated place. To ensure maximum stability and maintain optimum resin properties, resins should be stored in closed containers at temperatures below 25°C.

7.3. Specific End Use(s)

Exposure Scenario	No information available.
Other Guidelines	No information available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

Components with workplace control parameters.

Styrene	
Austria	80 ppm STEL 340 mg/m3 STEL 20 ppm TWA 85 mg/m3 TWA
Belgium	40 ppm TWA 173 mg/m3 TWA (skin) 80 ppm STEL 346 mg/m3 STEL
Bulgaria	85.0 mg/m3 TWA 215.0 mg/m3 STEL
Croatia	250 ppm STEL KGM 1080 mg/m3 STEL KGM 100 ppm TWA GM 430 mg/m3 TWA GM
Czech Republic	400 mg/m3 Ceiling 100 mg/m3 TWA (skin)
Denmark	25 ppm Ceiling 105 mg/m3 Ceiling (skin)
Estonia	20 ppm TWA

	90 mg/m3 TWA 50 ppm STEL 200 mg/m3 STEL (skin)
Finland	20 ppm TWA 86 mg/m3 TWA 100 ppm STEL 430 mg/m3 STEL
France	50 ppm TWA 215 mg/m3 TWA
Germany	20 ppm TWA 86 mg/m3 TWA
Greece	100 ppm TWA 425 mg/m3 TWA 250 ppm STEL 1050 mg/m3 STEL
Hungary	50 mg/m3 TWA AK 50 mg/m3 STEL CK
Ireland	20 ppm TWA 85 mg/m3 TWA 40 ppm STEL 170 mg/m3 STEL
Latvia	10 mg/m3 TWA 30 mg/m3 STEL
Lithuania	20 ppm TWA (IPRD) 90 mg/m3 TWA (IPRD) 10 ppm TWA (IPRD) 50 ppm STEL (TPRD) 200 mg/m3 STEL (TPRD) (skin)
Norway	25 ppm TWA 105 mg/m3 TWA 37.5 ppm STEL 131.25 mg/m3 STEL
Poland	200 mg/m3 STEL 50 mg/m3 TWA (skin)
Portugal OELs Data	20 ppm 40 ppm STEL
Romania	12 ppm TWA 50 mg/m3 TWA 35 ppm STEL 150 mg/m3 STEL
Russia	10 mg/m3 TWA (vapour) 30 mg/m3 STEL (vapour)
Slovakia	20 ppm TWA 86 mg/m3 TWA 200 mg/m3 Ceiling
Slovenia	20 ppm TWA 86 mg/m3 TWA 80 ppm STEL 344 mg/m3 STEL
Spain	20 ppm TWA 86 mg/m3 TWA 40 ppm STEL 172 mg/m3 STEL
Sweden	10 ppm LLV 43 mg/m3 LLV 20 ppm STV

	86 mg/m3 STV (skin)
Switzerland	40 ppm STEL 170 mg/m3 STEL 20 ppm TWA 85 mg/m3 TWA
United Kingdom	100 ppm TWA 430 mg/m3 TWA 250 ppm STEL 1080 mg/m3 STEL
ACGIH - TLV	20 ppm TWA 40 ppm STEL

Cobalt bis(2-ethylhexanoate)	
Austria	(skin)
Czech Republic	0.1 mg/m3 Ceiling 0.05 mg/m3 TWA
Greece	0.1 mg/m3 TWA
Ireland	0.1 mg/m3 TWA 0.3 mg/m3 STEL
Norway	0.2 mg/m3 TWA 0.06 mg/ m3 STEL
Switzerland	(skin) 0.05 mg/m3 TWA
United Kingdom	0.1 mg/m3 TWA

Biological occupational exposure limits

Component: Styrene

Bulgaria
BEI: 600 mg/g Creatinine, DETERMINANT: Mandelic acid and Phenylglyoxylic acid - together in urine, SAMPLING TIME: at the end of exposure or end of shift, in remote exposure - after several shifts

Finland
BEI: 1.2 mmol/L, DETERMINANT: MAPGA in urine, SAMPLING TIME: prior to shift
NOTE: MAPGA equals sum of urinary Mandelic and Phenylglyoxylic acids

France
BEI: 0.55 mg/L, DETERMINANT: Styrene in venous blood, SAMPLING TIME: end of shift, NOTE: Semi-quantitative (ambiguous interpretation)
BEI: 0.02 mg/L, DETERMINANT: Styrene in venous blood, SAMPLING TIME: prior to shift, NOTE: Semi-quantitative (ambiguous interpretation)
BEI: 800 mg/g Creatinine, DETERMINANT: Mandelic acid in urine, SAMPLING TIME: end of shift, NOTE: Non-specific (observed after the exposure to other substances)
BEI: 300 mg/g Creatinine, DETERMINANT: Mandelic acid in urine, SAMPLING TIME: prior to shift, NOTE: Non-specific (observed after the exposure to other substances)
BEI: 240 mg/g Creatinine, DETERMINANT: Phenylglyoxylic acid in urine, SAMPLING TIME: end of shift, NOTE: Non-specific (observed after the exposure to other substances)
BEI: 100 mg/g Creatinine, DETERMINANT: Phenylglyoxylic acid in urine, SAMPLING TIME: prior to shift, NOTE:Non-specific (observed after the exposure to other substances)

Germany
BEI: 600 mg/g, DETERMINANT: Mandelic acid plus Phenylglyoxylic acid in urine, SAMPLING TIME: end of shift, NOTE:measured as mg/g Creatinine
BEI: 600 mg/g, DETERMINANT: Mandelic acid plus Phenylglyoxylic acid in urine, SAMPLING TIME: end of several shifts, NOTE: measured as mg/g Creatinine; for long-term exposures

Latvia
BEI: 0.8 g/g Creatinine, DETERMINANT: Mandelic acid in urine, SAMPLING TIME: end of shift
BEI: 0.55 mg/g, DETERMINANT: Styrene in blood, SAMPLING TIME: end of shift

Romania
BEI: 800 mg/g Creatinine, DETERMINANT: Mandelic acid in urine, SAMPLING TIME: end of shift
BEI: 300 mg/g Creatinine, DETERMINANT: Mandelic acid in urine, SAMPLING TIME: beginning of second shift
BEI: 100 mg/g Creatinine, DETERMINANT: Phenylglyoxylic acid in urine, SAMPLING TIME: end of shift
BEI: 100 mg/g Creatinine, DETERMINANT: Phenylglyoxylic acid in urine, SAMPLING TIME: beginning of second shift
BEI: 0.55 mg/L, DETERMINANT: Styrene in blood, SAMPLING TIME: end of shift
BEI: 0.02 mg/L, DETERMINANT: Styrene in blood, SAMPLING TIME: beginning of second shift

Slovakia
BEI: 600 mg/g Creatinine, DETERMINANT: Mandelic acid and phenylglycolic acid in urine, SAMPLING TIME: after all work shifts, NOTE: for long-term exposure
BEI: 600 mg/g Creatinine, DETERMINANT: Mandelic acid and phenylglycolic acid in urine, SAMPLING TIME: end of exposure or work shift.

Derived No Effect Level (DNEL) and Predicted No Effect Concentration (PNEC)

Component	Derived No Effect Level (DNEL)	Predicted No Effect Concentration (PNEC)
Styrene	End Use: Workers Exposure Route: Inhalation Exposure Type: Acute, systemic effects Value: 289 mg/m^3(68 ppm) End Use: Workers Exposure Route: Inhalation Exposure Type: Acute, local effects Value: 306 mg/m^3(72 ppm) End Use: Workers Exposure Route: Inhalation Exposure Type: Long term, systemic effects Value: 85 mg/m^3(20 ppm) End Use: Workers Exposure Route: Dermal Exposure Type: Long term, systemic effects Value: 406 mg/kg bw/day End Use: General Population Exposure Route: Inhalation Exposure Type: Acute, systemic effects Value: 174.25 mg/m^3(41 ppm) End Use: General Population Exposure Route: Inhalation Exposure Type: Acute, local effects Value: 182.75 mg/m^3(43 ppm) End Use: General Population Exposure Route: Inhalation Exposure Type: Long term, systemic effects Value: 10.2 mg/m^3(2.4 ppm)	Fresh water Value: 0.028 mg/l Assessment factor: 10 Sea water Value: 0.0028 mg/l Assessment factor: 100 Water Value: 0.04 mg/l Intermittent Releases Assessment factor: 100 Fresh water sediment Value: 0.614 mg/kg dw Sea sediment Value: 0.0614 mg/kg dw Sewage Treatment Plant Value: 5 mg/l Assessment factor: 100 Soil Value: 0.2 mg/kg dw

	End Use: General Population Exposure Route: Dermal Exposure Type: Long term, systemic effects Value: 343 mg/kg bw/day	

8.2. Exposure controls

Engineering Controls: Use general ventilation to maintain airborne concentrations to levels that are below regulatory and recommended occupational exposure limits. Local ventilation may be required during certain operations.

Personal protective equipment

Eye Protection Safety glasses with side-shields conforming to EN166. If splashes are likely to occur, wear Tightly fitting safety goggles (EN166). Ensure that eyewash stations and safety showers are close to the workstation location.

Skin Protection Impervious clothing.

Hand Protection Protective gloves complying with EN 374. Wear chemical-resistant gloves such as poly vinyl alcohol or Viton. Gloves made of nitrile rubber or polyvinyl chloride

(PVC) may be used for splash protection and brief or intermittent contact with styrenated polyester resin. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Respiratory Protection: None required if hazards have been assessed and airborne concentrations are maintained below the exposure limits listed in Section 8. Wear an approved air-purifying respirator with organic vapour cartridges and particulate filters where airborne concentrations may exceed exposure limits in Section 8 and/or there is exposure to dust or mists due to sanding, grinding, cutting, or spraying. Use an approved positive-pressure air-supplied respirator with emergency escape provisions if there is any potential for an uncontrolled release, airborne concentrations are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

Recommended Filter type: Type A (EN141) and Type P2 (EN143)

Environmental exposure controls Local authorities should be advised if significant spillages cannot be contained

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:	Slight Pinkish Colour Viscous Liquid	**Physical State:**	Liquid
Odour:	Aromatic Hydrocarbon	**Odour Threshold:**	0.1ppm (Styrene)

		Remarks/ Method
pH	Not Applicable	None known
Melting Point/ Freezing Point	-31°C (Styrene)	None known
Boiling Point/ boiling Range	145°C (Styrene)	None known
Flash Point	32°C	None known
Evaporation Rate	0.49 (nBuAc = 1) (Styrene)	None known
Flammability Limit in air		
Upper	6.1% (Styrene)	
Lower	1.1% (Styrene)	
Vapour Pressure	6.7 hPa (Styrene) @ 20°C	None known
Vapour Density	3.6 (Air = 1) (Styrene)	None known
Specific Gravity	1.28 - 1.32 @ 25°C	None known
Solubility	Insoluble in water	None known
Partition Coefficient: n-Octanol/Water	No data Available	None known
Auto ignition Temperature	490°C (Styrene)	None known
Decomposition Temperature	No data Available	None known
Viscosity	7000 ± 1000 cP @ 20 rpm & 25°C	Brookfield Test Method
Explosive Properties	Not Applicable	
Oxidizing Properties	Not Applicable	

9.2. Other information
No other information available

10. STABILITY AND REACTIVITY

10.1. Reactivity
No hazardous reaction when stored and handled according to prescribed instruction. Product may ignite and burn at temperatures exceeding the flash point.

10.2. Chemical Stability
Stable under normal conditions. Stable under recommended storage conditions.

10.3. Possibility of Hazardous Reactions
Polymerization can occur. Hazardous polymerization will occur if contaminated with peroxides, metal salts and polymerization catalysts. Hazardous polymerization may occur upon depletion of inhibitor - may cause heat and pressure build-up in closed containers. Product may undergo hazardous polymerization at temperatures above 150^{O} F (65^{O} C).

10.4. Conditions to Avoid
Heat, flames and sparks. Contamination by those materials referred to under Incompatible materials. Unstable upon depletion of inhibitor. Elevated temperatures.

10.5. Incompatible materials
Strong acids. Strong oxidizing agents. Metal salts. Polymerization initiators. Reducing agents.

10.6. Hazardous Decomposition Products
Hydrocarbons. Carbon monoxide. Carbon dioxide (CO_2). Thermal decomposition can lead to release of irritating gases and vapours.

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute Toxicity

Ingestion Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea

Skin Contact Causes skin irritation. Prolonged skin contact may defat the skin and produce dermatitis.

Inhalation Harmful by inhalation. May cause irritation of respiratory tract. Inhalation of high vapour concentrations can cause CNS depression and narcosis.

Styrene

LD50 Oral	= 5000 mg/kg (Rat)
LD50 Dermal	> 2000 mg/kg (Rat)
LD 50 Inhalation	= 11.8 mg/l (4 H) Rat

Eye Contact Irritating to eyes.

Irritation Irritating to eyes and skin.

Corrosivity Non Corrosive

Sensitization Non Sensitizing

Carcinogenic Effect There is no convincing evidence that Styrene possesses significant carcinogenic potential in humans.

Repeated dose toxicity In humans, Styrene may cause a transient decrease in colour discrimination and effects on hearing. Repeated or prolonged exposure may cause skin irritation and dermatitis, due to defatting properties of the product. May cause damage to the liver, eyes, brain, respiratory system, central nervous system through prolonged or repeated exposure if inhaled.

STOT - Single Exposure Inhalation of vapours or mists may cause irritation to the respiratory system.

STOT - Repeated Exposure Harmful: Danger of serious damage to health by prolonged exposure through inhalation. Can cause liver damage, Repeated exposure affects the respiratory system, Auditory system: Prolonged and repeated exposures to high concentration have resulted in hearing loss in rats, Solvent abuse and noise interaction in the work environment may cause hearing loss, Central nervous system: Repeated exposure affects the nervous system.

Aspiration Toxicity Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

Mutagenic Effect Styrene has given mixed positive and negative results in a number of mutagenicity tests. Styrene was not mutagenic without metabolic activation but gave negative and positive mutagenic results with metabolic activation.

Target Organs Liver, Central nervous system (CNS), Respiratory system.

12. ECOLOGICAL INFORMATION

12.1. Toxicity

Styrene

Freshwater Algae	EC50 = 1.4 mg/L (Pseudokirchneriella subcapitata) (72h) EC50 0.46 - 4.3 mg/L (Pseudokirchneriella subcapitata) (72h)
Freshwater Fish	LC50 3.24 - 4.99 mg/L (Pimephales promelas) (96 h) flow-through LC50 19.03 - 33.53 mg/L (Lepomis macrochirus) (96 h) static LC50 6.75 - 14.5 mg/L (Pimephales promelas) (96 h) static LC50 58.75 - 95.32 mg/L (Poecilia reticulata) (96 h) static
Aquatic Invertebrates	EC50 3.3 - 7.4 mg/L (Daphnia magna) (48h)

12.2. Persistence and degradability

No information available.

12.3. Bioaccumulative potential.

Bioaccumulation is unlikely.

Styrene

Log Kow 2.95

Bioconcentration factor (BCF) 74.

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

12.6. Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues / Unused Products	This material and its container must be disposed of as hazardous waste. Dispose of in accordance with local regulations. Can be incinerated, when in compliance with local regulations should not be disposed of by release to sewers.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.
EWC Waste Disposal No	07 00 00 WASTES FROM ORGANIC CHEMICAL PROCESSES 07 02 00 Wastes from MFSU of plastics, synthetic rubber and man-made fibres 07 02 99 Wastes not otherwise specified

14. TRANSPORT INFORMATION

ADR/RID

UN-No.	1866
Proper Shipping Name	Resin Solution
Hazard Class	3
Packing Group	III
Classification Code	F1
Hazard Identification (Kemler No.)	No. 30
Tunnel Restriction Code	D/E
ADR Exception	This material meets the viscosity criteria specified in ADR 2.2.3.1.5 and may be classed as “not dangerous” when packaged in containers of less than 450 liters.

IMDG/IMO

UN-No.	1866
Proper Shipping Name	Resin Solution
Hazard Class	CLASS 3
Packing Group	III
Environmental Hazard	None
EMS No.	F-E, S-E
IMDG Exception	This material meets the viscosity criteria specified in IMDG Code 2.3.2.5 and may be exempt from the marking, labelling and package testing requirements if transported in containers of 30 litres or less.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No Information Available

IATA

UN-No.	1866
Proper Shipping Name	Resin Solution
Hazard Class	3
Packing Group	III
Environmental Hazard	None
Packing Instruction	355; 366

15. REGULATORY INFORMATION

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

Denmark

List of substances and processes that are considered to be carcinogenic

Component	Status
Styrene (CAS #: 100-42-5)	Present

Additional Information

Must not be used by youngsters under the age of 18, ref. the notification from the Ministry of Labour regarding work by youngsters. The user must have undergone special training approved by the Labour Inspection Authority (AT) in order to work with products containing carcinogenic substances.

Germany

WGK Classification
Hazardous to water/Class 2

Netherlands

List of Carcinogens, Mutagens and Reproductive Toxins
No information available

Water Hazard Class
10-May cause long-term adverse effects in the aquatic environment.

International Inventories

TSCA Inventory Status	This material is supplied under the Research and Development Exemption (Section (5)(h)(3)), If the US Toxic Substance Control Act (TSCA). This material contains a component that is NOT listed on the TSCA inventory. It may be used ONLY for research and development purposes.
Canadian Inventory Status	This material contains component that are NOT listed on the Canadian Domestic Substances List (DSL).
Australian Inventory Status	This product contains one or more chemical currently not on the Australian Inventory of Chemical Substances.
Korean Inventory Status	This product contains one or more chemicals currently nor on the Korean Chemical Substances List.
Philippine Inventory	This product contains one or more chemicals currently not on the Philippine Inventory of Chemicals and Chemical Substances.
Japan ENCS	This product contains one or more chemical currently not on the Japanese Inventory of Existing and New Chemical Substances.
Chinese IECS	This product contains one or more chemicals currently not on the Chinese Inventory of Existing Chemical Substances.
New Zealand Inventory	This product contains one or more chemicals currently not on the New Zealand Inventory of Chemicals.

Product Registrations

Norway	Not applicable
Denmark	Not applicable

16. OTHER INFORMATION

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
H319	- Causes serious eye irritation
H332	- Harmful if inhaled
H335	- May cause respiratory irritation
H361d	- Suspected of damaging the unborn child
H372	- Causes damage to organs through prolonged or repeated exposure if inhaled
H412	- Harmful to aquatic life with long lasting effects

Abbreviations

ACGIH	- American Conference of Governmental Industrial Hygienists
ADR	- European Agreement concerning the International carriage of Dangerous Goods by Road
BCF	- Bioconcentration Factor
BEL	- Biological exposure limits
CAS	- Chemical Abstracts Service
CLP	- Classification Packaging and Labelling
DNEL	- Derived Minimal Effect level
EAK	- Europaischer Abfallkatalog
EC	- European Commission
EC50	- Effective Concentration fifty
EINECS	- European Inventory of Existing Commercial Chemical Substances
ENCS	- Japanese Existing and New Chemical Substances
GHS	- Globally Harmonised System of Classification and Labelling of Chemicals
IATA	- International Air Transport Association
IMDG	- International Maritime Dangerous Goods
IMO	- International Maritime Organisation
LC50	- Lethal Concentration fifty
LD50	- Lethal Dose fifty per cent
MARPOL	- International Convention for the Prevention of Pollution from Ships
PBT	- Persistent, Bioaccumulative and Toxic
PNEC	- Predicted No Effect Concentration
REACH	- Registration Evaluation And Authorisation Of Chemicals
RID	- Regulations Relating to International Carriage of Dangerous Goods by Rail
STEL	- Short term exposure limit
STOT	- Specific Target Organ Toxicity
TSCA	- US Toxic Substances Control Act
TWA	- Time-Weighted Average
vPvB	- Very Persistent and Very Bioaccumulative
VOC	- Volatile Organic Compound

CLP categories listed in Chapter 3

Acute Tox.3	- Acute toxicity, Category 3
Acute Tox.4	- Acute toxicity, Category4
Aquatic Chronic2	- Hazardous to the aquatic environment, chronic, Category2
Aquatic Chronic3	- Hazardous to the aquatic environment, chronic, Category3
Asp. Tox.1	- Aspiration hazard, Category1
Carc.2	- Carcinogenicity. Category 2
Eye Irrit.2	- Eye irritation. Categoty2
Flam. Liq.2	- Flammable liquid, Category2
Flam. Liq.3	- Flammable liquid, Category3
Muta.2	- Germ cell mutagenicity , Category 2
Repr.2	- Reproductive toxicity, Category2

Skin Irrit.2	- Skin irritation, Category2
Skin Sens.1	- Skin sensitization, Category1
STOT RE1	- Specific target organ toxicity – repeated exposure, Category1
STOT RE2	- Specific target organ toxicity – repeated exposure, Category2
STOT SE3	- Specific target organ toxicity – repeated exposure, Category3

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End of Material Safety Data Sheet