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OLYMPUS
Marketing, Inc.

www.olympus.com.ph

Poly Klear
FIBERGLASS + RESIN

MATERIAL SAFETY DATA SHEET

POLYKLEAR R99-201-03 PREMIX MARINE CLEAR - NON-TOXIC

Section 1: Product Identification

Product Name : POLYKLEAR R99-201-03 PREMIX MARINE CLEAR - NON-TOXIC
Grade : Orthophthalic Laminating Resin
DOT Shipping Name : Resin solution
DOT Hazard Class : Flammable Liquid

Section 2: Hazards Identification

GHS Classification:

FLAMMABLE LIQUIDS, Category 3

ACUTE TOXICITY - INHALATION, Category 4

SKIN CORROSION/IRRITATION, Category 2

SPECIFIC TARGET ORGAN SYSTEMIC TOXICITY (SINGLE EXPOSURE), Category 3

Respiratory tract irritation

SERIOUS EYE DAMAGE/IRRITATION, Category 2

ASPIRATION HAZARD, Category 1

SPECIFIC TARGET ORGAN SYSTEMIC TOXICITY (REPEATED EXPOSURE),

Category 1

Auditory system and Central nervous system (CNS)

AQUATIC TOXICITY (ACUTE), Category 2

GHS label elements:

Symbol(s)



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Signal words

GHS Hazard

Statements

: Danger

: PHYSICAL HAZARDS

: H226: Flammable liquid and vapor.

: HEALTH HAZARDS:

: H304: May be fatal if swallowed and enters airways.

: H332: Harmful if inhaled.

: H315: Causes skin irritation.

: H319: Causes serious eye irritation.

: H355: May cause respiratory irritation.

: H372: Causes damage to organs through prolonged or repeated exposure

: ENVIRONMENT HAZARDS:

: H401: Toxic to aquatic life.

GHS Precautionary statements:

Prevention

P210: Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

P233: Keep container tightly closed.

P243: Take precautionary measures against static discharged.

P260: Do not breathe dust/fume/gas/mist/vapours/spray.

P264: Wash hands thoroughly after handling.

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection

Response

P304+P340: IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

P303+P361+P353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.

P332+P313: If skin irritation occurs: Get medical advice/attention.

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313: If eye irritation persists: Get medical advice/attention.

P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

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P370+P378: In case of fire: Use appropriate media for extinction.

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

P235: Keep cool.

Disposal

P501: Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and national regulations.

**Other Hazards
which do not result
in classification**

Vapours are heavier than air. Vapours may travel across the ground and reach remote ignition sources causing a flashback fire danger.

May form flammable/explosive vapour-air mixture.

Maintain dissolved oxygen and inhibitor at proper levels to prevent runaway polymerisation.

Repeated exposure may cause skin dryness or cracking.

Aggravated Medical

Pre-existing medical conditions of the following organ(s) system(s) may be aggravated by exposure to this material:

Central nervous system (CNS), auditory system, and Respiratory system

Section 3: Information on Hazardous Components

Component	CAS No.	Percentage	Threshold Limit Value
Styrene	100-42-5	38%	50ppm
Polyester		62%	

Section 4: First Aid Measures

Ingestion: Harmful if swallowed. Single dose oral toxicity is low. Do not induce vomiting.

Aspiration of material into the lungs could cause pneumonitis which can be fatal. Give milk or water. Seek medical attention.

Inhalation of Vapour: Harmful. Effects may include headache, nausea, fatigue, central nervous system depression, pulmonary oedema. May be irritating to nose, throat and respiratory tract. Move victim to fresh air. Apply artificial respiration or give oxygen if necessary. Seek medical attention.

Eye Contact: Irritant. Flush with copious amounts of water - lift eyelids repeatedly. Seek medical attention.

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Skin Contact: Irritant. Wash thoroughly with soap and water. Remove contaminated clothing and launder before re-use. Seek medical advice if irritation persists. Advice to Doctor: Treat symptomatically.

Section 5: Firefighting Measures

Flammable Liquid: 31°C

Flammable Limits: LEL 1.1% UEL 6.1%

Flash Point: 31 °C

Hazchem Code: 3[Y]

(Setaflash)

Extinguishing Media: Foam, Carbon Dioxide, Dry Powder, Water Fog

Unusual Fire and Explosion Hazards:

Styrene will polymerise at elevated temperatures. If this occurs in a closed container, there is a risk of violent rupture.

Special Firefighting Procedures:

Fight like a fuel-oil fire. Water used in fire-fighting should not be allowed to enter drainage system or contaminate soil.

Section 6: Accidental Release Measures

Steps to be taken if the material is released or spilled:

Eliminate all sources of ignition (flames, hot surfaces, and electrical, static or frictional sparks). Ventilate area.

Dyke area of spill and pump material into drums for use or disposal. Absorb remainder on sand or perlite and place the saturated absorbent into closed containers for disposal.

Prevent contamination of storm-water drains.

Waste disposal method. Destroy by liquid incineration with off-gas scrubber.

Contaminated absorbent to be incinerated or deposited in secure landfill in accordance with appropriate regulations.

Liquid material mixed with peroxide initiators should be allowed to gel before disposal as solid waste in accordance with appropriate regulations.

Section 7: Handling and Storage

- Avoid inhalation of vapour and contact with skin, eyes and clothing. Launder contaminated clothing before re-use.
- Wash hands thoroughly before eating.
- Ground (earth) all connections and containers when using above flash point.
- Store in a bonded area or approved flammable goods store away from direct heat (ideally below 27° C to prevent spoilage). Keep containers closed when not in use. Open drums slowly in case of internal pressure.

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- e) Isolate from all potential sources of ignition including flames and electrical sparks.
- f) Store separate from oxidizing materials, peroxides and metal salts.

Section 8: Exposure Control/Personal Protection

Workplace Exposure Limit: Styrene 50ppm

Use general dilution or local exhaust ventilation to maintain vapour concentration below WES level. If concentrations exceed exposure limit use organic vapour canister mask or approved air-line mask.

Skin Protection: Wear overalls or other work clothing providing arm and leg cover. Use protective gloves (PVC).

Eye Protection: Safety goggles or splash mask.

Section 9: Physical and Chemical Properties

Physical State	: Liquid
Appearance	: Clear, cloudy or coloured viscous liquid
Boiling Point (760mm HG)	: 145 °C (Styrene)
Specific Gravity	: 1.1 – 1.7
% Volatiles by Volume	: 35.0%
Solubility in H2O	: Insoluble

Fire and Explosion hazard

Flash Point	: 31 °C
Flammable Limits	: LEL 1.1% UEL 6.1%

Flammable limits of volatiles compound

Volatiles Styrene : 25 – 55 w/w

Section 11: Toxicological Information

When used under properly controlled conditions, within workplace exposure limits and with adequate protective equipment, no adverse health effects are to be expected.

Acute effects of over exposure.

If Swallowed: Harmful by ingestion. Possible irritation of mucous membranes, nausea, vomiting and gastric disturbance. Possible depression of central nervous system. Aspiration into lungs could cause pneumonitis which may damage lungs or may be fatal.

Eye Contact: Mild to moderate irritation. Reddening may occur if exposure is prolonged.

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Skin Contact: Irritant. May cause itching and redness of skin.

Inhalation of Vapour: May cause headaches, nausea, irritation of the respiratory tract and depression of the central nervous system.

Chronic effects of over exposure.

Mild dermatitis may result from prolonged or repeated skin contact. Styrene can be absorbed through the skin. Excessive exposure to the liquid material or vapour may affect the central nervous system, the liver, kidneys and respiratory system.

Section 12: Ecological Information

Prevent these products from entering storm-water drains sewers or waterways.

Styrene is the major contaminant hazard in these formulations and it will undergo slow (but near complete) biodegradation in contact with soil. Styrene vapour degrades rapidly in the atmosphere.

Styrene floats on water and will vaporise and biodegrade.

Section 13: Disposal Considerations

Waste Disposal: Small quantities of these products may be mixed with appropriate amounts of polymerisation initiators and allowed to solidify before disposal as solid waste.

Recover or recycle if possible.

This material and its container must be disposed of as hazardous waste.

Any disposal must comply with applicable local and national government regulations. Ensure that these materials do not enter drains, sewers or waterways.

Section 14: Transport Information

Identification number	-	UN 1866
Proper shipping name	-	Resin Solution, Flammable
Class / Division	-	3
Packing group	-	111
Hazchem Code	-	3(Y)
Marine Pollutant		

Section 15: Regulatory Information

These products are hazardous goods approved by the National Environmental Authority (Singapore) under the Group Standard for Additives, Intermediates, Process Chemicals, Raw Materials.

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Section 16: Other Information

None

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TECHNICAL DATA SHEET

POLYKLEAR R99-201-03 RESIN-GP PREMIX MARINE CLEAR (NON TOXIC)

A. DESCRIPTION

POLYKLEAR R99-201-03 is non-thixotropic, clear appearance and promoted. POLYKLEAR R99-201-03 exhibits good impregnated with fiberglass to show an excellent effect of transparency on the products.

B. APPLICATIONS

POLYKLEAR R99-201-03 is a specially formulated resin exclusively designed for lamination (sheet, inlay) application, such as roofing sheets, green house.

C. SPECIFICATIONS

Liquid PLK R99-S203 polyester has the following characteristics:

Appearance	Clear
Viscosity at 30°C (Brookfield LVT, spindle 3, 60rpm)	6– 8 ps
Gel Time at 30°C	8 – 12 minutes
Peak Exothermic Temperature	130°C – 140°C

Above gelation characteristics determined using 1% v/w of MEKP catalyst (Butanox M-50) on 40g of resin.

D. PROPERTIES

Pure resin casting of POLYKLEAR R99-201-03 unsaturated polyester resin

	Result	Test Method
Barcol Hardness	48 BHC	ASTM D2583-67
Heat Distortion Temperature	67.3 °C	ASTM D648-72
Elongation at Break	3.2%	ASTM D638-72
Specific Gravity of Liquid Resin at 25 °C	1.13 kg/L	ASTM D1475
Volume Shrinkage on Cure	9.0%	Specific Gravity
Flexural Strength	8.4 kgf/mm ²	ASTM D790
Tensile Strength	3 kgf/mm ²	ASTM D638
Impact Strength	3.9 kgf-cm/cm	ASTM D256

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E. USAGE

POLYKLEAR R99-201-03 resin performs best when it is completely cured. To do so, a proper combination of catalyst and accelerator must be used at room temperature for a sufficient period of time.

Generally, 1 percent of catalyst (BUTANOX M-50 MEKP) is used for POLYKLEAR R99-201-03.

Adjustments for shorter or longer gel time can be achieved by ranging the quantities of catalyst and/or accelerator used. As a rule, however, the amount of catalyst used should not be more than 2% or less than 0.5% while that of accelerator should range between 0.4% and 1%. Be sure to measure accurately.

Ensure that the accelerator must be completely mixed into the resin before catalyst is added in order to avoid a direct blending which due to a violent reaction may result in an **EXPLOSION**.

However owing to difficulties in presenting information applicable to all situations, no warranty is expressed or implied and users are recommended to carry out their own tests to determine the applicability of the above information and the suitability of PLK resin for their particular requirements.

F. STORAGE

PLK polyester resin will remain stable if stored in the dark and at temperatures below 25 °C. Their stability however deteriorates markedly at higher temperatures, especially when they are directly exposed to sunlight. Hence they should be kept in a cool, dark place. It is advisable to finish it within three months.

G. PACKING

PLK polyester resin is packed in liters, gallons, tins, pails and steel drums of standard size, containing 950g, 3.65kg, 15kg, 20kg, 220 kg net weight, respectively

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