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Marketing, Inc.

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Poly Klear
FIBERGLASS + RESIN

MATERIAL SAFETY DATA SHEET

POLYKLEAR R99-501 RESIN-GP WATER CLEAR

Section 1: Product Identification

Product Name : POLYKLEAR R99-501 RESIN-GP WATER CLEAR
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)



LUZON:

REGIONAL OFFICE
TAGUIG
1st Avenue, Sta. Maria Industrial Subd,
Bagumbayan, Taguig City
Tel.#: (02) 506-8519 ; 837-0710
837-0708
Fax #: (02) 519-1552 ; 553-2551

VISAYAS:

HEADQUARTERS
CEBU
2F SEA Olympus Building, AC Cortes Ave.
Trunkline #: (032) 421-7777
Tel.#: (032) 346-7137 ; 421-7800 to 06
421-7817 to 18 ; 421-7823
Fax #: (032) 421-7789 ; 346-1817

MINDANAO:

REGIONAL OFFICE
DAVAO
Unit A16 J.King Warehouse Complex
Km.3 Maa Road, Davao City 8000
Telefax #: (082) 244-1206 ; 302-2711

✉ inquiry@olympus.com.ph



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Signal words

: Danger

GHS Hazard

: PHYSICAL HAZARDS

Statements

: 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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Storage

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.

Dike 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 H ₂ O	: 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 R99-501 RESIN-GP WATER CLEAR

A. DESCRIPTION

POLYKLEAR R99-501 RESIN-GP WATER CLEAR is a low peak exothermic unsaturated polyester resin for making artificial marble and FRP products. It is a waxed and promoted. WATER CLEAR resin exhibits good transparency, light color and high glossiness. This resin is most suitable for use in making; High Quality Artificial Marble, Onyx Marble, Clear Transparent Casting as well as being used in the process of Solid Surfacing.

The viscosity of WATER CLEAR resin is rather low in order to facilitate good wet out, fast bubble release and to accept high filler loading, thus assuring an easy processing. It is ideal for making a variety of casting objects such as flooring, bathroom bowls, table tops, bath units, artificial marble walls, R.T.M. and the like onyx marble.

B. APPLICATIONS

WATER CLEAR resin can be used for clear casting as it has low shrinkage, a high reflective index, slow yellowing effect over time.

C. SPECIFICATIONS

Liquid PLK R99-501 RESIN-GP WATER CLEAR polyester has the following characteristics:

Appearance	Clear
Viscosity at 30°C (Brookfield LVT, spindle 3, 60rpm)	4– 8 ps
Gel Time at 30°C	5 – 10 minutes
Peak Exothermic Temperature	110°C – 125°C
Stability in the Dark below 25°C	4 months

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

D. USAGE

R99-501 RESIN-GP WATER CLEAR polyester laminating 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 (BUTONOX M-50 MEKP) is used. Generally, 1 to 1.5 percent of catalyst together with 0.5

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percent accelerator (CM) is needed.

Both quantities can be adjusted for a shorter or longer gel time by increasing or decreasing catalyst, accelerator, or both. As a rule, however, the amount of catalyst used should not exceed 2% and must not be less than 0.5% while that of accelerator should range between 0.4% and 1%. Be sure to measure accurately.

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**.

Since the viscosity increases as the storage period of resin lengthens, Styrene Monomer can be added to lower it to a desired level. However, excess of Styrene Monomer added will affect the quality of resin.

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 POLYKLEAR resin for their particular requirements.

E. Storage

Polyklear R99-501 RESIN-GP WATER CLEAR 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.

F. PACKING

Polyklear R99-501 RESIN-GP WATER CLEAR RESIN is packed in liters, gallons and tins.

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