



MATERIAL SAFETY DATA SHEET

POLYKLEAR R99-201-01 RESIN-GP PREMIX MARINE THIXOTROPED (PMT)

I. PRODUCT IDENTIFICATION

Product Name : POLYKLEAR R99-201-01 RESIN-GP PREMIX MARINE THIXOTROPED (PMT)
Grade : Orthophthalic Laminating Resin
DOT Shipping Name : Resin solution
DOT Hazard Class : Flammable Liquid

II. INGREDIENTS

Principal Components
 Unsaturated Polyester : 62%
 Styrene Monomer : 38%

III. PHYSICAL DATA

Physical Properties : Liquid
 Boiling Point (760mm HG) : 145Oc
 Specific Gravity : 1.13
 % Volatiles by Volume : 35.0%
 Solubility in H₂O : Insoluble

Fire and Explosion hazard
 Flash Point : 31oC

Flammable limits of volatiles
 Styrene : 1.1% to 6.1%

IV. HEALTH HAZARD DATA

Health Hazard	Effects of short-term exposure	Effects of long-term exposure	First detectable signs of over exposure
If Inhaled	Irritation to eyes & respiratory tract		Nausea, vomiting, weakness, drowsiness dermatitis, headache anorexia, decreased blood pressure.
If Swallowed	Harmful – medium danger		
Skin Contact	Irritant to skin		

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



Personal Protection:

- Inhalation - at levels above 50ppm up to 2%, use approved industrial canister gas masks. Above 2% use air or oxygen supplied full face mask.
- Eyes - Safety goggles if subject to splashing.
- Skin - Rubber or insoluble plastic.

First Aid:

- Ingestion - Induce vomiting at least three times with milk and raw eggs.
- Skin contact - Wash contact areas with soap and water. Remove contaminate clothing.
- Eye contact - Flush eyes with water for 15 minutes. Seek medical attention if irritation persists.
- Inhalation - Move to fresh air. Lie down and keep warm. Oxygen will relieve coughing. If unconscious, revive and seek medical attention.

V. STORAGE

Store in a cool place, preferably below 25oC. Take all precautions for the storage and handling of flammable liquids. Avoid copper or copper alloys. Rubber hose NOT recommended. DO NOT store near excessive heat, oxidizing agents, alkylation catalyts, halogens, hydrogen halides.

VI.. SPILLAGE PROCEDURES

- Clean up - Contain spill for recovery or absorb onto inert absorbent material for disposal.
- Protective measure - Eliminate all ignition source.

VII. FIRE FIGHTING PROCEDURES

- Extinguishing media - Dry chemical, water fog, foam, CO2, cool storage drums with water spray.
- Decomposition products - Acrid fumes.

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



S.E.A.
OLYMPUS
Marketing, Inc.

www.olympus.com.ph

Poly Klear
FIBERGLASS + RESIN

VIII. DISPOSAL

Incineration in compliance with local regulations.

IX.. Transportation Information

IMDG

Identification number	-UN 1866
Proper shipping name	-Unsaturated Polyester Resin Class / Division-3
Packing group	-III
Marine Pollutant	-No

IMPORTANCE

The information furnished above is based on data believed to be accurate, and is offered in good faith for the protection of the user. However, the information is offered without guarantee, and no responsibility can be accepted for the use of or reliance on same.

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



TECHNICAL DATA SHEET

POLYKLEAR R99-201-01 RESIN-GP PREMIX MARINE THIXOTROPED (PMT)

I. IDENTIFICATION AND DESCRIPTION

Product Name:

POLYKLEAR R99-201-01 RESIN-GP PREMIX MARINE THIXOTROPED (PMT)

Product Description:

R99-201-01 is thixotropic, quick-curing unsaturated polyester resin of orthophthalic grade for general purpose laminating purposes. It is waxed and preaccelerated, suitable for both hand lay-up and gun spray-up.

II. APPLICATIONS

This resin is used for making a variety of glass fibre reinforced plastic products such as boats and canoes, bus shelters, telephone booths, stadium seat, bath tubs, water and storage tanks, cooling towers, plant and flower pots, bath unit, models, containers, dustbins, safety helmets, water and oil pipes, ash trays, septic tanks, car body, sporting equipment, concrete framings, chairs and tables, and other household articles. Glass fibre reinforced laminates made with this resin possess excellent mechanical strength and have good rigidity and outstanding durability. Our R99-201-01 and its variants polyester resin are approved by Lloyd's Register of shipping for boat construction.

III. SPECIFICATIONS

Liquid R99-201-01 polyester has the following characteristics:

Appearance	:	Pink
Viscosity at 30°C (Brookfield LVT, spindle 3, 60rpm)	:	400 – 600 mPas
Gel Time at 30°C	:	8 – 15 minutes
Cure Time at 30°C	:	14 – 25 minutes
Peak Exothermic Temperature	:	135°C – 155°C
Stability in the Dark below 25°C	:	6 months
Thixotropic Index	:	∞ 2 Ratio
Acid Value	:	20 – 24mgKoH/g (Styrenated resin)

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

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 60
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



IV. PROPERTIES

Pure Resin Casting of R99-201-01N polyester resin

Water Absorption (7day value)	- 0.35% (Test Method ISO-62-1980)
Barcol Hardness	- 48 BHC (Test Method ASTM D2583-67)
Heat Distortion Temperature	- 67.3oC (Test Method ASTM D648-72)
Elongation at Break	- 3.2% (Test Method ASTM D638-72)
Specific Gravity of Liquid Resin at 25oC	- 1.13 kg/litre (Test Method ASTM D1475) Volume Shrinkage on Cure - 9% (Test Method Specific Gravity)
Volatile Content	- 40 - 43% (Test Method ASTM D3030)
Flexural Strength	- 82.4 MPa (Test Method ASTM D790)
Flexural Modulus	- 5257.3 MPa (Test Method ASTM D790)
Tensile Strength	- 29.4MPa (Test Method ASTM D638)

Mat laminates (34.4% glass content) cured with R99-201-01 polyester resin have 0.192% water absorption for 24 hours and 0.28% for 7 days according to ISO-62-1980 Test Method and exhibit the following physical properties:

	IN DRY LAMINATES	IN WET LAMINATES	TEST METHOD
Flexural Strength MPa	190.3	214.3	ASTM D790-71
Flexural Modulus MPa	8700	7.07	ASTM D790-71
Tensile Strength MPa	130.4	154	ISO 3268-1978
Tensile Modulus MPa	11770	9.88	ASTM D638-72

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 66
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



V. USAGE

R99-201-01 general purpose 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) together with 0.5 percent of accelerator (6% cobalt content) is used for R99-201-01.

Adjustments for shorter or longer geltime 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.

Since the viscosity increased as the storage period of resin lengthens, Styrene Monomer can be added to lower it to a desired level.

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 SHCP resin for their particular requirements.

VI. STORAGE

R99-201-01 polyester resin will remain stable for about six months 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.

VII. PACKING

R99-201-01 polyester resin is packed in steel drums of standard size, containing 220 kilos in net weight.

SEA Olympus Marketing Inc. reserves the right to change the information given herein without prior notice. We believe this information to be reliable, but do not guarantee its applicability to the user's process or assume liability for occurrence arising out of its use. The user, by accepting products described herein agrees to be responsible for thoroughly testing any application before committing to production. © 20

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 66
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



TECHNICAL DATA SHEET

R99-201-01 PREMIX MARINE THIXOTROPED

I. IDENTIFICATION AND DESCRIPTION

Product Name: R99-201-01 PREMIX MARINE THIXOTROPED

Product Description: *PREMIX MARINE THIXOTROPED* is thixotropic, quick-curing unsaturated polyester resin of orthophthalic grade for general-purpose laminating purposes. It is non-waxed and pre-accelerated, suitable for both hand lay-up and gun spray-up.

II. APPLICATIONS

This resin is used for making a variety of glass fibre reinforced plastic products such as boats and canoes, bus shelters, telephone booths, stadium seat, bath tubs, water and storage tanks, cooling towers, plant and flower pots, bath unit, models, containers, dustbins, safety helmets, water and oil pipes, ash trays, septic tanks, car body, sporting equipment, concrete framings, chairs and tables, and other household articles. Glass fibre reinforced laminates made with this resin possess excellent mechanical strength and have good rigidity and outstanding durability. Our R99-201-01 and its variants polyester resin are approved by Lloyd's Register of shipping for boat construction.

III. SPECIFICATIONS

Liquid R99-201-01 polyester has the following characteristics:

Appearance	:	Pink
Viscosity at 30°C (Brookfield LVT, spindle 3, 60rpm)	:	400 – 600 mPas
Gel Time at 30°C	:	8 – 15 minutes
Cure Time at 30°C	:	14 – 25 minutes
Peak Exothermic Temperature	:	135°C – 155°C
Stability in the Dark below 25°C	:	6 months
Thixotropic Index	:	2 Ratio
Acid Value	:	20 – 24mgKoH/g (Styrenated resin)

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

LUZON:

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

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



IV. PROPERTIES

Pure Resin Casting of R99-201-01N polyester resin

Water Absorption (7day value)

- 0.35% (Test Method ISO-62-1980)

Barcol Hardness

- 48 BHC (Test Method ASTM D2583-67)

Heat Distortion Temperature

- 67.3oC (Test Method ASTM D648-72)

Elongation at Break

- 3.2% (Test Method ASTM D638-72)

Specific Gravity of Liquid Resin at 25oC

- 1.13 kg/litre (Test Method ASTM D1475) Volume Shrinkage on Cure - 9% (Test Method Specific Gravity)

Volatile Content

- 40 - 43% (Test Method ASTM D3030)

Flexural Strength

- 82.4 MPa (Test Method ASTM D790)

Flexural Modulus

- 5257.3 MPa (Test Method ASTM D790)

Tensile Strength

- 29.4MPa (Test Method ASTM D638)

Mat laminates (34.4% glass content) cured with R99-201-01 polyester resin have 0.192% water absorption for 24 hours and 0.28% for 7 days according to ISO-62-1980 Test Method and exhibit the following physical properties:

	IN DRY LAMINATES	IN WET LAMINATES	TEST METHOD
Flexural Strength MPa	190.3	214.3	ASTM D790-71
Flexural Modulus MPa	8700	7.07	ASTM D790-71
Tensile Strength MPa	130.4	154	ISO 3268-1978
Tensile Modulus MPa	11770	9.88	ASTM D638-72

LUZON:

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

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