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# High performance polyurethane

## epoxy resin composite material &Solutions


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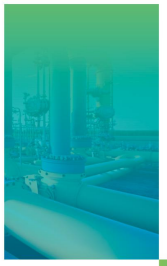

Emphasizing Technological Innovation, Pursuing Excellence in Quality.




# CORPORATE
## PROFILE »

Guizhou Guangri Technology Co., Ltd. is a modern comprehensive technology enterprise integrating product research and development, design, manufacturing, sales and installation. The company has a registered capital of 52 million, has a composite materials production and management team with more than 30 years of experience, and has an annual production capacity of 100,000 meters. In order to be committed to the continuous innovation of science and technology, it has maintained close cooperative relations with domestic and foreign composite materials experts and professors all year round.

As a manufacturer of polyurethane bridges, Guangri Technology mainly produces polyurethane bridges, polyurethane pipe boxes, polyxenon ester composite cable trays, polyurethane cable trays, highway special pipe boxes, polyurethane poles, polyurethane Pultruded profiles, polyurethane composite flooring, polyaminase doors and windows, polyurethane photovoltaic frames and other various profiles, the products are widely used in highways, high-speed rail, petrochemical, alkali industry, coal chemical industry, metallurgy, building materials, Environmental protection, electric power and other industries.



accumulate



perfection

Focus



Science and technology



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# 01

# POLYURETHANE RESINCOMPOSITES

At present, the Polyurethane Division has developed products for 5 types of composite molding processes:

pultrusion | entangle | Resin transfer molding | prepreg | Vacuum lead-in

**The R&D team is equipped with core test equipment to ensure R&D efficiency and effectiveness**


Gel tester


Moisture calibrator


Universal tension machine

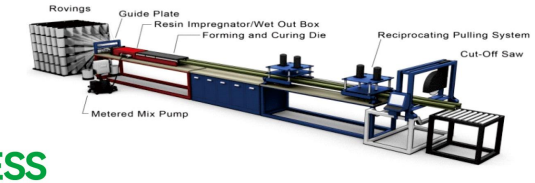

High and low temperature alternating wet heat box


Xenon lamp aging chamber


DSC

01

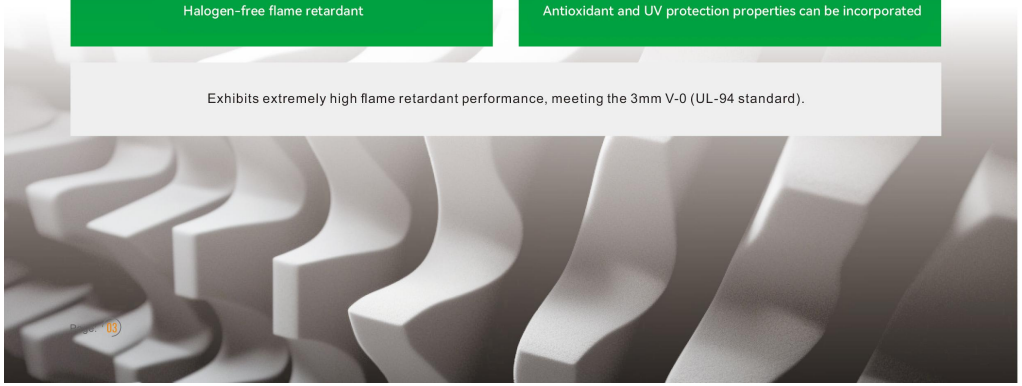
# POLYURETHANE PULTRUSIONPROCESS




With the in-depth development of polyurethane pultrusion in the industry in recent years, and the gradual maturity ofsupporting pultrusion equipment, two-component glue injection machines, and injection area designs, polyurethanepultrusion has been widely recognized.The core value lies in high production efficiency, strong product strength, adjustable flame retardant properties, andfriendly productionenvironment.

## FEATURES

| | |
|---|---|
| Profile pultrusion speed can reach 1.2M/MIN | The bidirectional oxygen index of the profile can reach more than 32 |
| Balanced flame retardant and mechanical properties | Extremely high mechanical properties and fatigue resistance |
| Halogen-free flame retardant | Antioxidant and UV protection properties can be incorporated |
| Exhibits extremely high flame retardant performance, meeting the 3mm V-0 (UL-94 standard). | |





## PRODUCTS

| | |
|---|---|
| PUR 1015 | Balanced flame retardant and mechanical properties |
| PUR 1015N | Antioxidant and anti-uV properties are incorporated based on 1015 |
| PUR 1012 | Halogen-free flame retardant |
| PUR 1020 | Extremelyhigh flame retardant performance, reaching 3mmv-0 (UL-94 standard) |

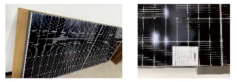
**PUR 1016**

Extremely high mechanical properties and fatigue resistance



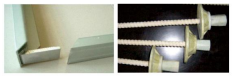
**PUR 1017**

Solar frame series resin, balanced strength and viscosity



**PUR 1018**

Extreme weather resistance system



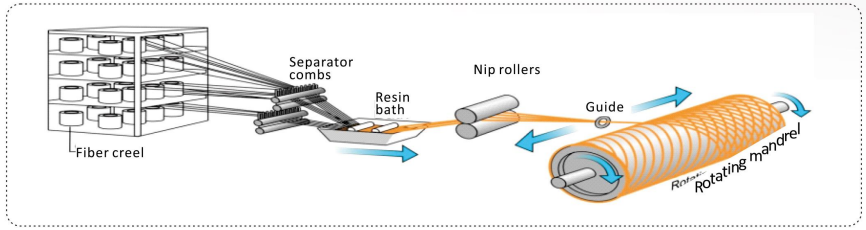
## SOLUTION

Common solutions include polyurethane fireproof and insulated doors and windows, polyurethane photovoltaic module frames, and polyurethane cable trays, The following is an overview of polyurethane pultruded cable tray data.

| | | | ReasterTM PUR1015 Conventional bridge performance | ReasterTM series flame retardant V-0(3mm) version bridge performance |
|---|---|---|---|---|
| Test Details | Norms | unit | Value | Value |
| Density | DIN ISO 1183-1 | kg/m³ | 2118 | 2115 |
| HDT | DIN ISO 75-1/2004 | ℃ | 238 | 229 |
| Flexural Modulus | DIN ISO 178-2013 | GPa | 31.8 | 30.1 |
| Flexural Strength | DIN ISO 178-2013 | MPa | 1150 | 1100 |
| Flexural Modulus | DIN ISO 178-2013 | GPa | 15.3 | 13.7 |
| 90CFlexural Strength | DIN ISO 178-2013 | MPa | 210 | 214 |
| 0℃Short beam shear | ASTM D2344 | MPa | 56.3 | 56.3 |
| 90℃Short beam shear | ASTM D2344 | MPa | 32.9 | 32.9 |
| 0℃ Oxygen Index | GB/T 8924 | % | 37.8 | >36.0 |
| 90℃Oxygen index | GB/T 8924 | % | 31.8 | >32.0 |

# 02 POLYURETHANE FILAMENT WINDING

For conical tower products, suitable polyurethane resin is developed for fiber winding process core value is high curing efficiency, product toughness and excellent fatigue resistance.

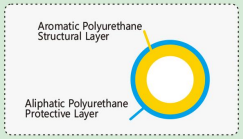



## PRODUCTS

| | |
|---|---|
| WD 2100 | Aromatic polyurethane, provides structural support |
| WD 2200 | Aliphatic polyurethane, provides weather resistance |
| WD 2210 | Providing structural integrity with lower moisture sensitivity. |

## SOLUTION

Option 1: Adopt aromatic structure and aliphatic protective layer design, filament winded consecutively while curing simultaneously.

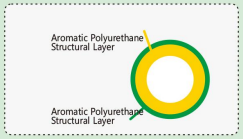



| PRODUCT | PECULIARITY |
|---|---|
| WD 2100 | Aromatic polyurethane, provides structural support |
| WD 2200 | Aliphatic polyurethane, provides weather resistance |

### Option 1 Data Overview

| Test Details | Norms | Units | AROMATIC INNER LAYER | THE ALIPHATIC PROTECTIVE LAYER |
|---|---|---|---|---|
| Tensile Strength | DIN ISO 14125 | MPa | 69 | 24 |
| Tensile Modulus | DIN ISO 14125 | MPa | 2400 | 300 |
| Flexural Strength | DIN ISO 14125 | MPa | 110 | 50 |
| Flexural Modulus | DIN ISO 14125 | MPa | 3000 | 500 |
| Glass transition temperature Tg | From DMA (tan δ) | °C | 82 | 35 |

Option 2: Using aromatic polyurethane structural layer, offline spraying/roller coating after curing




| PRODUCT | PECULIARITY |
|---|---|
| WD 2100 | Provide structure support |
| WD 2210 | Providing structural integrity with lower moisture sensitivity. |

### Option 2 Data Overview

| Test Details | Norms | Units | THE ALIPHATIC PROTECTIVE LAYER |
|---|---|---|---|
| Tensile Strength | DIN ISO 14125 | MPa | 50 |
| Tensile Modulus | DIN ISO 14125 | MPa | 510 |
| Flexural Strength | DIN ISO 14125 | MPa | 73 |
| Flexural Modulus | DIN ISO 14125 | MPa | 730 |
| Glass transition temperature Tg | From DMA (tan δ) | °C | 56 |

# 03 POLYURETHANE RTM



THE POLYURETHANE RESIN DEVELOPED FOR RTMPROCESS CAN ACHIEVE RAPID PENETRATION, RAPIDCURING,EXCELLENT MECHANICAL PROPERTIES,ANDADJUSTABLE FLAME RETARDANT PROPERTIES

| Product | Features |
|---|---|
| RTM 3100 | Balanced flame retardant and mechanical properties |
| RTM 3200 | It can achieve a 1mm V-0 (UL-94 standard). |

# 04 POLYURETHANE PREPREG

| Product | Features |
|---|---|
| PP 4080 | Storage at room temperature >2 months, mechanical properties equivalent to epoxy prepreg |
| PP 4090 | 2mm v-0(UL-94标准 ) For high flame retardant requirements, it can reach 2mm v-0 (UL-94 standard) |









# 05 POLYURETHANE SMC

THROUGH THE ADJUSTMENT OF CHEMICAL REACTION STRUCTURE PRINCIPLES, POLYURETHANE ACHIEVES SEGMENTED CURING. AFTER ADDING FILLERS, A PREPREGIS MADE. FAST INTEGRAL FORMING, NO SEAMS IN PRODUCT DESIGN, UNLIMITED PRODUCT SIZE AND SHAPE, FAST ASSEMBLY AND LIGHT WEIGHT; QUICKDEMOULDING, LARGE-SCALE PRODUCTION, NO VOC IN THE PRODUCTION PROCESS.

| Product | Features |
|---|---|
| SMC 5100 | Storage at room temperature >2 months, fast curing, no VOC |





# 06 POLYURETHANE VACUUM INFUSION

Through the adjustment of chemical structure, the water sensitivity of polyurethane is effectively controlled.

With the supporting of defoaming mixing equipment, the lower mixing viscosity allows for faster infusion.

The curing time is also shorter compared to epoxy systems.

| Product | Features |
|---|---|
| INF 6100 | Low water sensitivity, low mixing viscosity, fast curing and short production cycle<br>Better mechanical properties and fatigue resistance. |



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# EPOXY RESIN COMPOSITE

## PRODUCT SYSTEM

| Product System |
| --- |
| Pultrusion resin 20** series |
| Amine Filament winding resin 21** series |
| Acid anhydride filament winding resin 22** series |
| Infusion resin 24** series |
| Prepreg resin 25** series |
| Customized products |

# 01 PULTRUSION RESIN SERIES

Suitable for carbon fiber and glass fiber pultruded products



## FEATURES

Long operating time and excellent processability.

Low mixing viscosity, excellent wettability for glass fiber and carbon fiber

The curing speed is fast, and the pultrusion speed can be adjusted according to the size and shape of the part.

### Basic parameters

| Product Code | | Appearance | Viscosity cp/25℃ | Density g/cm³ | Mixed | Mixed Viscosity cp/25℃ | min/150℃ | Recommended Pultrusion Process |
|---|---|---|---|---|---|---|---|---|
| 2001 | EP-2001A | Light yellow transparent liquid | 5000-12000 | 1.10-1.20 | EP-2001A/B/ Mold release -100/80/2 (Release agent) | 300-800 | 50-90 | Mold Zone I: 120-150°C Mold Zone II: 150-180°C Mold Zone III: 170-200°C Post-curing Zone: 190-220°C Pultrusion Speed: 0.1-0.5m/min, which can be adjusted according to component size. |
| | EP-2001B | Amber-colored transparent liquid | 30-100 | 1.10-1.30 | | | | |
| 2002 | EP-2002A | Light yellow transparent liquid | 1000-3000 | 1.10-1.20 | EP-2001A/B/ Mold release -100/100/2 (Release agent) | 200-500 | 90-150 | Mold Zone I: 120-150°C Mold Zone II: 150-170°C Mold Zone III: 180-200°C Post-curing Zone: 190-220°C Pultrusion Speed: 0.1-0.5m/min, which can be adjusted according to component size. |
| | EP-2002B | yellow transparent liquid | 30-100 | 1.10-1.30 | | | | |
| 2003 | EP-2003A | Light yellow transparent liquid | 3000-6000 | 1.10-1.20 | EP-2003A/B/ Mold release -100/105/2 (Release agent) | 300-800 | 90-150 | Mold Zone I: 120-150°C Mold Zone II: 150-190°C Mold Zone III: 180-220°C Post-curing Zone: 190-220°C Pultrusion Speed: 0.1-0.5m/min, which can adjusted according to component size. |
| | EP-2003B | yellow transparent liquid | 40-100 | 1.10-1.30 | | | | |
| 2004 | EP-2004A | yellow transparent liquid | 2000-5000 | 1.10-1.20 | EP-2004A/B/ Mold release -100/125/2 (Release agent) | 500-1200 | 60-120 | Mold Zone I: 150-180°C Mold Zone II: 170-200°C Mold Zone III: 190-220°C Post-curing Zone: 200-220°C Pultrusion Speed: 0.1-0.5m/min, which can be adjusted according to component size. |
| | EP-2004B | yellow transparent liquid | 50-150 | 1.10-1.30 | | | | |
| 2005 | EP-2005A | yellow transparent liquid | 1500-4000 | 1.10-1.20 | EP-2005A/B/ Mold release -100/140/2 (Release agent) | 400-900 | 100-160 | Mold Zone I: 150-180°C Mold Zone II: 180-200°C Mold Zone III: 190-220°C Post-curing Zone: 200-220°C Pultrusion Speed: 0.1-0.5m/min, which can be adjusted according to component size. |
| | EP-2005B | yellow transparent liquid | 50-150 | 1.10-1.30 | | | | |

### Performance of the cast body

| Product Code | Tensile strength MPA | Elongation at break | Tensile modulus | bending strength | Bending modulus | Glass transition temperature | Curing process |
|---|---|---|---|---|---|---|---|
| EP-2001 | ≥75 | ≥5.0 | ≥2700 | ≥120 | ≥3100 | ≥110 | 90℃2h+160℃4h |
| EP-2002 | ≥70 | ≥6.0 | ≥2600 | ≥120 | ≥3000 | ≥130 | 100℃1h+130℃1h+160℃4h |
| EP-2003 | ≥70 | ≥3.0 | ≥2600 | ≥120 | ≥2800 | ≥160 | 100℃1h+130℃1h+160℃4h |
| EP-2004 | ≥60 | ≥2.5 | ≥2500 | ≥80 | ≥2800 | ≥200 | 100℃1h+150℃1h+200℃3h |
| EP-2005 | ≥50 | ≥2.0 | ≥2800 | ≥60 | ≥2800 | ≥220 | 100℃1h+160℃1h+200℃3h |
| Remark | The above data are all obtained through testing under specific conditions. Considering the actual operating process and other factors, please conduct targeted performance tests before using this product to ensure applicability. | | | | | | |



# 02 PULTRUSION RESIN CUSTOM SERIES

PULTRUSION PRODUCTS WITH SPECIAL REQUIREMENTS
SUCH AS WEATHER RESISTANCE AND FLAME RETARDANT

## Basic parameters

| Product Code | | Appearance | Viscosity cp/25℃ | Density g/cm³ | Mixed | Mixed Viscosity cp/25℃ | min/150℃ | Recommended Pultrusion Process |
|---|---|---|---|---|---|---|---|---|
| Beam Plate | EP-2011A | Colorless to pale yellow transparent liquid. | 7000-11000 | 1.10-1.20 | EP-2011A/B/ Mold release -100/95/2 (Release agent) | 800-1200 | 40-80 | Mold Zone I: 140-170°C<br>Mold Zone II: 170-200°C<br>Mold Zone III: 170-200°C<br>Post-curing Zone: 200-220°C<br>Pultrusion Speed: 0.6-0.8m/min, which can be adjusted according to component size. |
| | EP-2011B | Amber-colored transparent liquid | 30-100 | 1.10-1.30 | | | | |
| Flame retardant. | EP-2012A | Colorless to pale yellow transparent liquid. | 7000-110000 | 1.10-1.20 | EP-2012A/B/ Mold release -100/100/2 (Release agent) | 100-600 | 60-80 | Mold Zone I: 140-170°C<br>Mold Zone II: 170-200°C<br>Mold Zone III: 170-200°C<br>Post-curing Zone: 190-220°C<br>Pultrusion Speed: 0.1-0.5m/min, which can be adjusted according to component size. |
| | EP-2012B | Amber-colored transparent liquid | 20-100 | 1.10-1.30 | | | | |
| Colorless | EP-2013A | Colorless to pale yellow transparent liquid. | 3000-5000 | 1.10-1.20 | EP-2013A/B/ Mold release -100/90/2 | 100-500 | 120-180 | Mold Zone I: 140-170°C<br>Mold Zone II: 170-200°C<br>Mold Zone III: 170-200°C<br>Post-curing Zone: 190-220°C<br>Pultrusion Speed: 0.1-0.5m/min, which can be adjusted according to component size |
| | EP-2013B | Colorless to pale yellow transparent liquid. | 30-100 | 1.10-1.30 | | | | |



| Product Code | | Appearance | Viscosity cp/25℃ | Density g/cm³ | Mixed | Mixed Viscosity cp/25℃ | min/150℃ | Recommended Pultrusion Process |
|---|---|---|---|---|---|---|---|---|
| 2014 Weather Resistant | EP-2014A | Colorless transparent liquid. | 1000-3000 | 1.10-1.20 | EP-2014A/B/ Mold release -100/95/2 (Release agent) | 100-500 | 150-200 | Mold Zone I: 140-170°C<br>Mold Zone II: 170-200°C<br>Mold Zone III: 170-200°C<br>Post-curing Zone: 190-220°C<br>Pultrusion Speed: 0.1-0.5m/min, which can be adjusted according to component size |
| | EP-2014B | Colorless transparent liquid. | 30-100 | 1.10-1.30 | | | | |
| 2015 Weather-resistant, flame-retardant. | EP-2015A | Colorless transparent liquid. | 100-600 | 1.10-1.20 | EP-2015A/B/ Mold release -100/95/2 (Release agent) | 50-300 | 100-160 | Mold Zone I: 140-170°C<br>Mold Zone II: 170-200°C<br>Mold Zone III: 170-200°C<br>Post-curing Zone: 190-220°C<br>Pultrusion Speed: 0.1-0.5m/min, which can be adjusted according to component size |
| | EP-2015B | Colorless transparent liquid. | 30-100 | 1.10-1.30 | | | | |
| 2016 On the sea | EP-2016A | Colorless to pale yellow transparent liquid. | 3000-8000 | 1.10-1.20 | EP-2016A/B =100/90 | 200-800 | 70-90 | Mold Zone I: 140-170°C<br>Mold Zone II: 170-200°C<br>Mold Zone III: 170-200°C<br>Post-curing Zone: 190-220°C<br>Pultrusion Speed: 0.5-0.8m/min, which can be adjusted according to component size. |
| | EP-2016B | yellow transparent liquid | 30-100 | 1.10-1.30 | | | | |

## Casting properties

| Product Code | Tensile strength MPA | Elongation at break | Tensile modulus | bending strength | Bending modulus | Glass transition temperature | Curing process |
|---|---|---|---|---|---|---|---|
| EP-2011 | ≥60 | ≥3.0 | ≥2700 | ≥110 | ≥2600 | ≥120 | 100℃1h+140℃1h+180℃1h |
| EP-2012 | ≥50 | ≥5.0 | ≥2000 | ≥90 | ≥2500 | ≥100 | 90℃2h+160℃3h |
| EP-2013 | ≥70 | ≥5.0 | ≥2700 | ≥120 | ≥3000 | ≥110 | 100℃1h+140℃5h |
| EP-2014 | ≥60 | ≥3.0 | ≥2800 | ≥100 | ≥2600 | ≥110 | 100℃1h+130℃1h+160℃4h |
| EP-2015 | ≥50 | ≥2.0 | ≥2800 | ≥100 | ≥3000 | ≥80 | 100℃1h+130℃1h+160℃4h |
| EP-2016 | ≥70 | ≥4.0 | ≥2800 | ≥120 | ≥3000 | ≥120 | 90℃2h+130℃1h+160℃4h |
| Remark | The above data are all obtained through testing under specific conditions. Considering the actual operating process and other factors, please conduct targeted performance tests before using this product to ensure applicability. | | | | | | |

# 03 WINDING RESIN (AMINE SYSTEM)

FIBER, GLASS FIBER FILAMENT WINDING PRODUCTS



## FEATURES

| | | |
|---|---|---|
| Moderate mixing viscosity, excellent processability | good wetting properties with glass and carbon fibers | superior product performance stability. |

### Basic parameters

| Product Code | | Appearance | Viscosity cp/25℃ | Density g/cm³ | Mixed mass ratio | Mixed Viscosity cp/25℃ | s/100℃ | Recommended curing process |
|---|---|---|---|---|---|---|---|---|
| 2101 | EP-2101A | Colorless to pale yellow transparent liquid | 2000-5000 | 1.10-1.20 | EP-2101A/EP-2101B=3/1 | 200-600 | 10-20 | 50 °C 2h+80 °C 6h, the curing process can be adjusted according to the size of the product. The cooling process needs to be slowly cooled with the furnace to prevent internal stress damage |
| | EP-2101B | Colorless transparent liquid. | 10-50 | 0.90-1.10 | | | | |
| 2102 | EP-2102A | Colorless to pale yellow transparent liquid | 2000-4000 | 1.10-1.20 | EP-2102A/EP-2102B=4/1 | 300-800 | 5-15 | 50 °C 2h+80 °C 1h+130 °C 5h,the curing process can be adjusted according to the size of the product. The cooling process needs to be slowly cooled with the furnace to prevent internal stress damage |
| | EP-2102B | Colorless transparent liquid. | 20-100 | 0.90-1.10 | | | | |
| 2103 | EP-2103A | Light yellow transparent liquid | 3000-7000 | 1.10-1.30 | EP-2103A/EP-2103B=100/23 | 500-3000 | 5-10 ( 130℃ ) | 80 °C 3h+130 °C 1h+180 °C 3h,the curing process can be adjusted according to the size of the product. The cooling process needs to be slowly cooled with the furnace to prevent internal stress damage |
| | EP-2103B | Brown to black viscous liquid. | 200-500 | 1.00-1.20 | | | | |

### Casting properties

| Product Code | Tensile strength MPA | Elongation at break | Tensile modulus | bending strength | Bending modulus | Glass transition temperature | Curing process |
|---|---|---|---|---|---|---|---|
| EP-2101 | ≥70 | ≥7.0 | ≥2800 | ≥110 | ≥3200 | ≥70 | 50℃2h+80℃6h |
| EP-2102 | ≥80 | ≥8.0 | ≥2500 | ≥120 | ≥2800 | ≥120 | 50℃2h+80℃1h+130℃5h |
| EP-2103 | ≥60 | ≥2.0 | ≥3000 | ≥100 | ≥2500 | ≥160 | 80℃3h+130℃1h+180℃3h |
| Remark | The above data are all obtained through testing under specific conditions. Considering the actual operating process and other factors, please conduct targeted performance tests before using this product to ensure applicability. | | | | | | |



# 04 FILAMENT WINDING RESIN (ANHYDRIDE SYSTEM)

SUITABLE FOR CARBON FIBER AND GLASS FIBER FILAMENT WINDING PRODUCTS.



## FEATURES

| | | |
|---|---|---|
| Low mixed viscosity, good processability | good wetting properties with glass and carbon fibers | superior product performance stability. |

### Basic parameters

| Product Code | | Appearance | Viscosity cp/25℃ | Density g/cm³ | Mixed mass ratio | Mixed Viscosity cp/25℃ | s/150℃ | Recommended curing process |
|---|---|---|---|---|---|---|---|---|
| 2201 | EP-2201A | Colorless to pale yellow transparent liquid | 3000-6000 | 1.10-1.20 | EP-2201A:EP-2201B=100 : 90 | 500-1500 | 60-100 | 90 ° C2h+130 ° C1h+160 ° C, adjust the curing process according to the size of the product, and the cooling process needs to be relieved with the furnace to prevent internal stress damage |
| | EP-2201B | Light yellow transparent liquid | 50-200 | 1.10-1.30 | | | | |
| 2202 | EP-2202A | Light yellow transparent liquid | 3000-6000 | 1.10-1.20 | EP-2202A:EP-2202B=100 : 100 | 500-1500 | 60-80 | 90 ° C2h+130 ° C1h+160 ° C, adjust the curing process according to the size of the product, and the cooling process needs to be relieved with the furnace to prevent internal stress damage |
| | EP-2202B | Light yellow transparent liquid | 50-200 | 1.10-1.30 | | | | |
| 2203 | EP-2203A | Light yellow transparent liquid | 2000-5000 | 1.10-1.20 | EP-2203A:EP-2203B=100 : 110 | 500-1500 | 70-120 | 90°C2h+150°C1h+160°C4h, adjust the curing process according to the size of the product, and the cooling process needs to be relieved with the furnace to prevent internal stress damage |
| | EP-2203B | Light yellow transparent liquid | 50-200 | 1.10-1.30 | | | | |

| Product Code | | Appearance | Viscosity cp/25℃ | Density g/cm³ | Mixed mass ratio | Mixed Viscosity cp/25℃ | s/150℃ | Recommended curing process |
|---|---|---|---|---|---|---|---|---|
| 2204 | EP-2204A | Light yellow transparent liquid | 3000-6000 | 1.10-1.20 | EP-2204A:EP-2204B=100 : 120 | 500-1500 | 40-80 | 90℃2h+150℃1h+200℃3h, adjust the curing process according to the size of the product, and the cooling process needs to be relieved with the furnace to prevent internal stress damage |
| | EP-2204B | Light yellow transparent liquid | 50-200 | 1.10-1.30 | | | | |
| 2205 | EP-2205A | Light yellow transparent liquid | 3000-6000 | 1.10-1.20 | EP-2205A:EP-2205B=100 : 130 | 500-1500 | 100-150 | 90℃2h+150℃1h+200℃3h,adjust the curing process according to the size of the product, and the cooling process needs to be relieved with the furnace to prevent internal stress damage |
| | EP-2205B | Light yellow transparent liquid | 50-200 | 1.10-1.30 | | | | |
| 2211 weather proof | EP-2211A | Colorless to pale yellow transparent liquid | 500-1000 | 1.10-1.20 | EP-2211A:EP-2211B=100 : 75 | 200-500 | 240-300 | 90℃2h+140℃5h,adjust the curing process according to the size of the product, and the cooling process needs to be relieved with the furnace to prevent internal stress damage |
| | EP-2211B | Colorless transparent liquid. | 30-100 | 1.10-1.30 | | | | |

## Casting properties

| Product Code | Tensile strength MPA | Elongation at break | Tensile modulus | bending strength | Bending modulus | Glass transition temperature | Curing process |
|---|---|---|---|---|---|---|---|
| EP-2201 | ≥70 | ≥5.0 | ≥2500 | ≥120 | ≥3000 | ≥125 | 90℃2h+130℃1h+160℃4h |
| EP-2202 | ≥70 | ≥4.0 | ≥2700 | ≥110 | ≥3000 | ≥145 | 90℃2h+130℃1h+160℃4h |
| EP-2203 | ≥60 | ≥2.5 | ≥2800 | ≥110 | ≥3000 | ≥165 | 90℃2h+150℃1h+200℃3h |
| EP-2204 | ≥40 | ≥1.5 | ≥2800 | ≥90 | ≥2800 | ≥205 | 90℃2h+150℃1h+200℃3h |
| EP-2205 | ≥30 | ≥1 | ≥2800 | ≥50 | ≥2800 | ≥225 | 90℃2h+150℃1h+220℃3h |
| EP-2211 | ≥65 | ≥6.0 | ≥2500 | ≥110 | ≥3000 | ≥80 | 90℃2h+140℃5h |
| Remark | The above data are all obtained through testing under specific conditions. Considering the actual operating process and other factors, please conduct targeted performance tests before using this product to ensure applicability. | | | | | | |



# 05 ELECTRONIC INSULATION CASTING MATERIAL SERIE

SUITABLE FOR INDOOR USE OF ELECTRICAL PRODUCTS, SUCH AS VOLTAGE TRANSFORMERS, INSULATORS.AND TRANSFORMERS.



## FEATURES

Low viscosity, long operational time, excellent processability

Excellent crack resistance, cold and hot impact resistance, and electrical performance

## Basic parameters

| Product Code | | Appearance | Viscosity cp/25℃ | Density g/cm³ | Mixed mass ratio | Mixed Viscosity cp/25℃ | min/120℃ | Recommended curing process |
|---|---|---|---|---|---|---|---|---|
| 2301 | EP-2301A | Colorless to pale yellow transparent liquid | 7000-10000 | 1.10-1.20 | EP-2301A/EP-2301B=100/60 | 500-1500 | 20-25 | 80℃6h+140℃8h |
| | EP-2301B | Light yellow transparent liquid | 30-100 | 1.10-1.30 | | | | |
| 2302 | EP-2302A | Colorless to pale yellow transparent liquid | 3000-8000 | 1.10-1.20 | EP-2302A/EP-2302B=100/80 | 300-1500 | 15-20 | 80℃6h+140℃8h |
| | EP-2302B | Light yellow transparent liquid | 30-100 | 1.10-1.30 | | | | |
| 2303 | EP-2303A | Colorless to pale yellow transparent liquid | 3000-8000 | 1.10-1.20 | EP-2303A/EP-2303B=100/80 | 300-1500 | 12-18 | 80℃6h+140℃8h |
| | EP-2303B | Light yellow transparent liquid | 30-100 | 1.10-1.30 | | | | |

## Casting properties

| Product Code | Tensile strength MPA | Elongation at break | Tensile modulus | bending strength | Bending modulus | Glass transition temperature | Curing process |
|---|---|---|---|---|---|---|---|
| EP-2301 | ≥65 | ≥7.0 | ≥2800 | ≥120 | ≥3400 | ≥100 | 80℃6h+140℃8h |
| EP-2302 | ≥70 | ≥7.0 | ≥2700 | ≥125 | ≥3200 | ≥110 | 80℃6h+140℃8h |
| EP-2303 | ≥75 | ≥7.0 | ≥2600 | ≥120 | ≥3000 | ≥120 | 80℃6h+140℃8h |
| Remark | The above data are all obtained through testing under specific conditions. Considering the actual operating process and other factors, please conduct targeted performance tests before using this product to ensure applicability. | | | | | | |

# 06 INJECTION RESIN SERIES

SUITABLE FOR VACUUM INJECTION AND HAND LAYUP PROCESS PRODUCTS



## FEATURES

| | | |
|---|---|---|
| Low mixing viscosity and good wettability. | Moderate operational time, excellent processabilit | Adjustable curing temperature, can be cured at room temperature or quickly at elevated temperature |

### Basic parameters

| Product Code | | Appearance | Viscosity cp/25℃ | Density g/cm³ | Mixed mass ratio | Mixed Viscosity cp/25℃ | s/150℃ | Recommended curing process |
|---|---|---|---|---|---|---|---|---|
| 2401 | EP-2401A | Colorless to pale yellow transparent liquid | 1000-2000 | 1.10-1.20 | 2401A/2401B =100/50 | 200-800 | 1-3 | ordinary temperature 8h+80℃3h or 7d |
| | EP-2401B-20 | Light yellow transparent liquid | 200-350 | 0.90-1.00 | | | | |
| | EP-2401B-60 | Light yellow transparent liquid | 100-250 | 0.90-1.00 | 2401A/2401B-60 =100/50 | 200-600 | 5-7 | |
| | EP-2401B-120 | Light yellow transparent liquid | 100-200 | 0.90-1.00 | 2401A/2401B-120 =100/38 | 100-500 | 8-10 | |
| 2402 | EP-2402A | Colorless to pale yellow transparent liquid | 2000-4000 | 1.10-1.20 | 2402A/2402B-1 =3/1 | 100-500 | 15-20 | ordinary temperature 8h+80℃6h or 100℃3h |
| | EP-2402B-1 | Light yellow transparent liquid | 10-50 | 0.90-1.00 | | | | |
| | EP-2402B-2 | Light yellow transparent liquid | 10-50 | 0.90-1.00 | 2402A/2402B-2 =100/30 | 100-500 | 12-18 | |
| | EP-2402B-3 | Light yellow transparent liquid | 10-50 | 0.90-1.00 | 2402A/2402B-3 =100/28 | 100-500 | 10-15 | |
| 2411 FLAME RETARDANT | EP-2411A | Colorless to pale yellow transparent liquid | 500-1500 | 1.10-1.20 | EP-2411A/EP-2411B=100/25 | 50-500 | 30-50 | ordinary temperature 8h+80℃3h or 60℃5h |
| | EP-2411B | Colorless transparent liquid. | 10-50 | 0.90-1.10 | | | | |



# 07 PREPREG RESIN SERIES

SUITABLE FOR CARBON FIBER AND GLASS FIBER COMPOSITE PRODUCTS.



## FEATURES

| | | |
|---|---|---|
| Moderate mixing viscosity and good processability. | Good wettability to glass fiber and carbon fiber. | Excellent product performance and stability. |

### Basic parameters

| Product Code | Viscosity mPa.s/70℃Viscosity | Geltime min/135℃ | Tg/℃ | Applied products | Product Features |
|---|---|---|---|---|---|
| 2501AB | <1000 | ≤10min | 115 | Simple pre-impregnation equipment, convenient processing | Solvent type, good wettability |
| 2502 | 18000-22000 | ≤7min | 115 | Suitable for high-performance sports equipment manufacturing fields such as bicycles, tennis rackets, badminton rackets, golf clubs, etc. | High toughness and Flexural Strength, solvent-free, with few pores |
| 2503 | 25000-33000 | ≤3min | 135 | Suitable for composite material products that require flame retardancy, new energy battery covers | The composite flammability grade of glass fiber material reaches S3 according to DIN5510 test, the smoke density grade reaches SR2, and the droplet grade reaches ST2. The curing rate is fast and the performance is stable. |

| Product Code | VISCOSITY MPA.S/70℃VISCOSITY | Geltime min/135℃ | Tg/℃ | Applied products | Product Features |
|---|---|---|---|---|---|
| 2504 | 28000-33000 | ≤7min | 125 | Suitable for rail transit interiors and structural components made of fiber composite materials with low smoke, low toxicity, and high strength flame retardant requirements | Halogen-free flame retardant, smoke suppressant, non-toxic, and fast curing rate. The composite material meets the manufacturing requirements of the high-end field of rail transit through EN45545 R1 HL3 level. |
| 2505 | 28000-35000 | ≤8min | 180 | Composite material products suitable for inflatable bicycle rims and special high-temperature environments, aerospace | The glass transition temperature of pure resin can reach 180C (DSC), with good fiber wettability and stable surface quality. Post curing can further improve heat resistance performance. |

**Casting properties**

| Product Code | Tensile strength Mpa | Elongation at break % | Tensile modulus Mpa | Bending strength Mpa | Bending modulus Mpa | Glass transition temperature ℃ | Curing technology |
|---|---|---|---|---|---|---|---|
| Reaster-EP-2501 | ≥60 | ≥2.0 | ≥3000 | ≥110 | ≥3000 | ≥110 | 80℃1h+130℃2h |
| Reaster-EP-2502 | ≥70 | ≥2.0 | ≥3000 | ≥120 | ≥3000 | ≥130 | 100℃1h+150℃1h |
| Reaster-EP-2503 | ≥70 | ≥2.0 | ≥3000 | ≥120 | ≥3000 | ≥130 | 100℃1h+130℃1h |
| Reaster-EP-2504 | ≥60 | ≥2.0 | ≥2800 | ≥110 | ≥3000 | ≥130 | 100℃1h+130℃1h |
| Reaster-EP-2505 | ≥50 | ≥2.0 | ≥2800 | ≥110 | ≥3000 | ≥180 | 100℃1h+150℃1h+180℃3h |
| Remark | The above data are all obtained through testing under specific conditions. Considering the actual operating process and other factors, please conduct targeted performance tests before using this product to ensure applicability. | | | | | | |



# 08 CUSTOMIZED PRODUCTS

HIGH-END APPLICATION OF EPOXY RESIN



## FEATURES

| Product Code | Appearance | Epoxy Value (eq/100g) Epoxy Value | Viscosity (Pa.s) Viscosity | Application and Features |
|---|---|---|---|---|
| PME-5101 | Light yellow transparent liquid | 0.46~0.50 | 5046 | Good toughness, but not soft, can be used for coatings, adhesives, and thickeners |
| PME-5102 | | 0.40~0.46 | 7040 | |
| PME-5103 | | 0.37~0.40 | 7037~ | |
| PME-5104 | Light yellow transparent liquid | 0.46~0.50 | 0.86~0. | Good flexibility, used for coatings, adhesives, Injection materials, grouting materials, etc |
| PME-5105 | | 0.40~0.46 | 1.80~0. | |
| PME-5106 | | 0.37~0.40 | 2.37~ | Good toughness, resistant to cold and hot impacts, used in coatings |
| PME-5201 | Light yellow transparent liquid | 0.45~0.50 | 2.4 | Good toughness, resistant to cold and hot impacts, used in coatings, electronic potting adhesives, adhesives, inks, grouting materials, etc |
| PME-5202 | | 0.40~0.45 | 1040 | |
| PME-5203 | | 0.37~0.40 | 9~55 | |