

ENGINEERED FRP SOLUTIONS



Unity Fiber & Composite is a single point destination for development, product testing, manufacturing, quality management, logistics support, installation and after sales service in composites

Unity Fiber & Composite

Unity Fiber & Composite is a single point destination for development, product testing, manufacturing, quality management, logistics support, installation and after sales service in composites, providing :

- Pultruded & Molded End Use Products
- Standard and customized solutions with high level of product performance
- Compliance to customer specifications and conformance to National & international standards
- Quality Management Systems ensuring customer satisfaction

Our Infrastructure

We have fully operational 10,000 Sq Ft of floor area in Sangma, Padra, Vadodara Industrial Area with 3 Pultrusion Machines with 10 Nos of Line in each machine & 1 FRP Rebar Machine with 10 Nos of Lines

- Pultrusion – 8000 Sq Ft.
- Dispatch – 2000 Sq Ft.

A full fledged laboratory is operational in this facilities.





Testing Facility

UNITY has established a fully equipped Laboratory to cater to the needs of customers and in-house testing for continuous improvements

Below are some available capabilities:

- Mechanical Testing
- Chemical analysis
- Physical Testing
- Incoming raw material testing
- Customer Specific tests

We can establish more facilities in near future for various tests that are presently performed at various testing laboratories based on establishing long term strategic partnership with our customers.

The above addition will help us to serve our strategic partners & customers in a better way and will help our Research and development programme as well.

Our Testing Facility



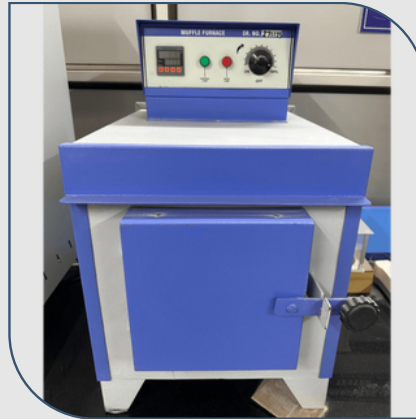
DYE PENETRATION TEST

IEC 61109 & IEC 62217



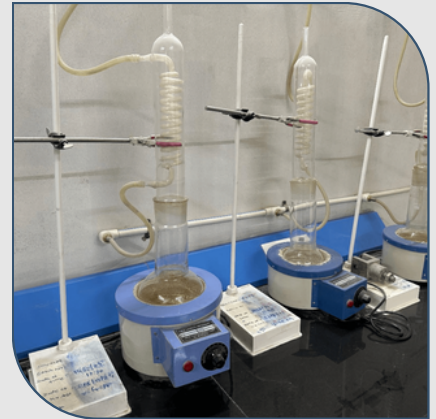
BARCOL HARDNESS

TEST ASTM D 2583



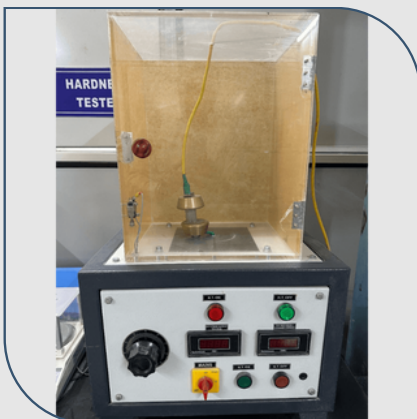
GLASS CONTENT TEST

ASTM D 2584



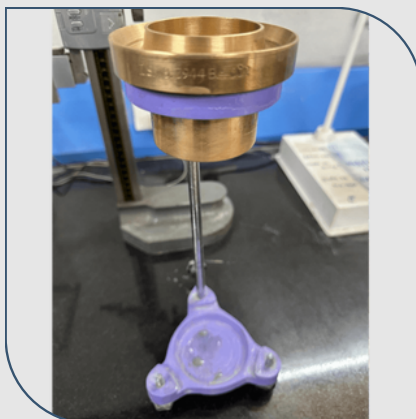
WATER DIFFUSION TEST

ASTM D 2585



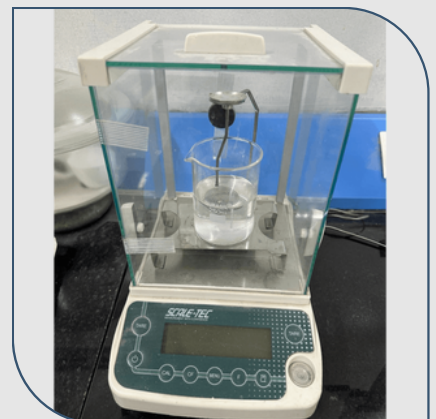
**HIGH VOLTAGE TEST
@ 12 Kv**

ASTM D 2586



**VISCOSITY TEST BY FORD CUP
METHOD (B-4)**

IS - 3944



**WATER ABSORPTION &
DENSITY TEST**

ASTM D 570 & ASTM D 792

Quality Policy



We all at Unity Fiber & Composite are committed to pursue customer satisfaction as prime goal.



Unity Fiber & Composite is committed to providing quality products to meet customer requirements.



Unity Fiber & Composite is committed to involving all employees through quality management system as per ISO 9001 : 2015 in order to have continual improvement in performance of organization with focus on excellence including safety & legality.



We shall ensure that these principles are known, understood and applied by the company so that our Quality Management System translates into a strengthening of our actions and into a continuous improvement in our results.



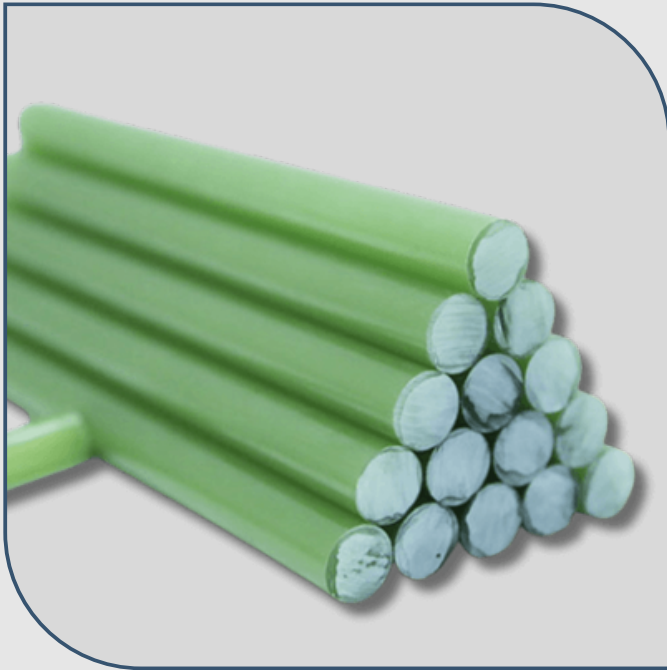
We will regularly review that these principles are being put into practice.



Products

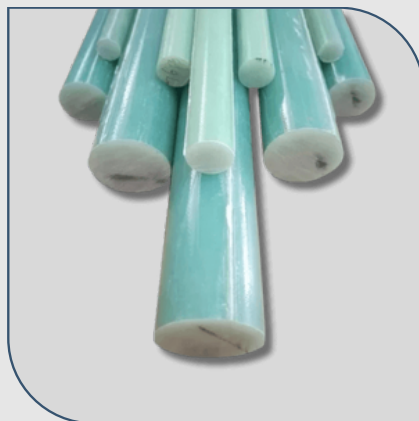
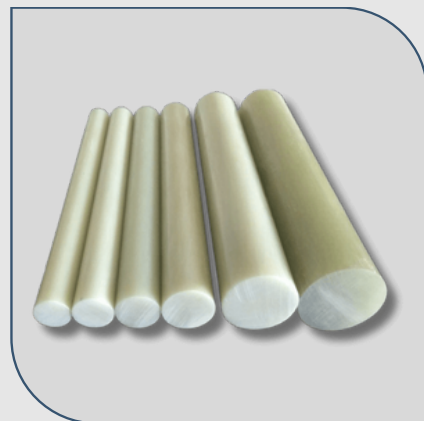
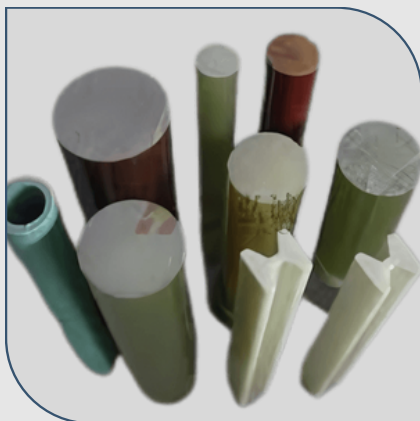
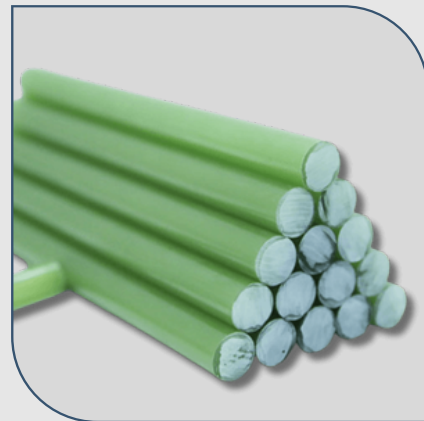
ECR Epoxy Rod

High-Performance Electrical Insulation & Corrosion Resistance



At Unity Fiber & Composite, we manufacture premium-grade ECR (Electrical Corrosion Resistant) Epoxy Rods designed for high mechanical strength, superior insulation, and excellent resistance to moisture and chemicals. These rods are made using high-quality E-glass and ECR glass fibers embedded in epoxy resin, making them ideal for demanding electrical and industrial applications.

- ✓ **Excellent Electrical Insulation:** Suitable for high-voltage environments and insulation components.
- ✓ **High Mechanical Strength:** Maintains dimensional stability and structural integrity under load.
- ✓ **Corrosion & Chemical Resistance :** Withstands harsh operating environments, including chemicals, humidity, and UV exposure.
- ✓ **Thermal Stability:** Performs reliably across a wide temperature range.
- ✓ **Smooth Surface Finish:** Suitable for further processing, machining, and coating.



ECR Epoxy Rod

FRP Rod Plant Specifications

Sl.No	Parameters	Sample	Ref. Std.	Specification
1	Visual Appearance	100 %	Plant Standard	Free from voids, cracks, dents
2	Dimensional Tolerance	1% of Batch (min 10 Nos)	Plant Standard	Dia: ± 0.05 mm Length: + 1 mm
3	Straightness		Plant Standard	1.5 mm/ metre (max)
4	Hardness, Barcol	1/ Batch	ASTM D 2583	60 minimum
5	Specific Gravity, 23 ± 2 °C	1/Batch	ASTM D 792	2.0 – 2.20 gm/cc ³
6	Glass content	1/Batch	ASTM D 2584	80 $\pm$ 5 %
7	Dye Penetration Test	1/Batch	IEC 62217	No dye shall raise through the specimens before the 15 minutes have elapsed
8	Water Absorption at (20 + 2 deg C, 24 hrs)	1/Batch	ASTM D 570	0.1% maximum
9	Water diffusion test, (0.1% by weight of Nacl in de ionised water, boiled for 100 hrs,	1/Batch	IEC 62217	During the test, 12 kV is to be applied. No puncture or surface flashover shall occur. The current during the hole test shall not exceed 0.5 mA (r.m.s)
10	Tensile strength	Once in a Year / As and When Required By Customer	ASTM D3916	780 Mpa (min)

11	Flexural strength	Once in a Year / As and When Required By Customer	ASTM D4476	900 Mpa (min)
12	ECR Rod Stress corrosion / Brittle Fracture test(1 mol/1HNO3, at 80% tensile stress)	Once in a Year / As and When Required By Customer	ERDA Standard	> 96 hours shall withstand, No Cracks
13	Glass Transition temperature, Tg	Once In 4 Months	ASTM D 3418	125°C +/- 5°C & 145°C +/- 5°C
14	Boron Content , B2O3	Once in 4 Months	Lucid Method	<=50 ppm
15	FRP Rod Surface finish	min 5 Nos	Plant Standard	Rods should be grinded for good bonding, suitable for silicone composite insulators. Ground rods will be wiped to clean dust particles,before packing and dispatch.
16	Roughness	Once in 4 Months	Plant Standard	Ra Value – 3 to 5
17	Power Frequency withstand test	Random / Once per Order	As per Customer Requirement	Withstand 100 kV for 30 minutes, temp should not raised more than 5°C
18	SEM and FTIR Signature Analysis	Random / Once per Order	As per Customer Requirement	SEM on FRP Rod cross section, surface analysis by optical spectrograph

FRP Rod Manufacturing Process

FRP (Fiber Reinforced Polymer) rod manufacturing, most commonly using the pultrusion process, involves pulling continuous fiber reinforcements through a resin bath and then through a heated die to create a solid, shaped profile. This process results in FRP rods with consistent cross-sections and high strength-to-weight ratios.

Here's a more detailed breakdown of the pultrusion process:

Fiber Feeding

Continuous fiber rovings or mats (like fiberglass) are pulled from creels and guided into the system

Resin Impregnation

The fibers are passed through a resin bath containing thermoset resins, as well as other materials like pigments, fillers, and catalysts.

Performing

The resin-saturated fibers are shaped into the desired cross-section using pre-forming guides.

Curing

The preformed composite is pulled through a heated die, which initiates the curing process, hardening the resin and bonding the fibers.

Cutting

The preformed composite is pulled through a heated die, which initiates the curing process, hardening the resin and bonding the fibers.

Continuous Process

Pultrusion is a continuous process, allowing for the efficient production of long, uniform FRP rods.

Controlled Environment:

The process is carefully controlled to ensure proper resin impregnation, fiber alignment, and curing, resulting in high-quality, durable products.

Versatility

Pultrusion can be adapted to produce rods with various cross-sections and fiber orientations, offering flexibility in design and application.

Reinforcement

The choice of fibers and resin, along with the use of fillers and additives, allows for customization of the FRP rod's properties to meet specific application requirements.

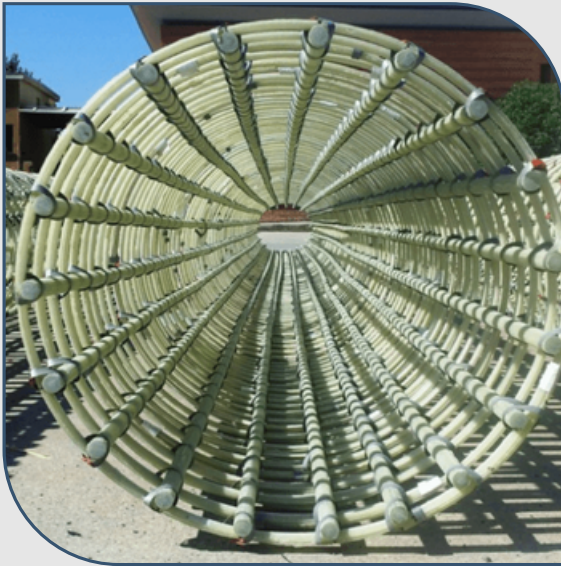
GFRP Rebar

FRP rebar stands for Fiber Reinforced Polymer Rebar.



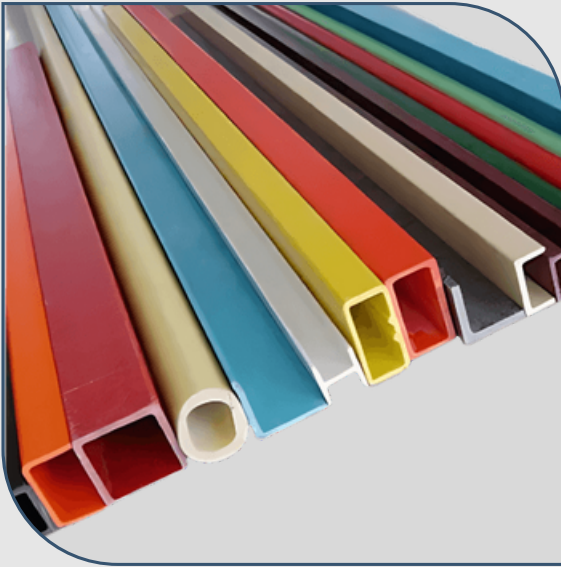
It is a type of reinforcement bar made from fiber reinforced polymer composite material, rather than traditional steel.

Fiber-reinforced plastic FRP is a durable, light-weight building material recognised for its corrosion resistance. FRP, which is simply a spirally twisted structural reinforcing rod, is commonly referred to as composite since it is composed of a variety of materials, including plastic resin and glass fibres. In contrast to iron and steel, which are prone to corrosion, the combination of these two materials yields FRP, or fiber-reinforced plastic, which never reacts to the chloride-rich atmosphere



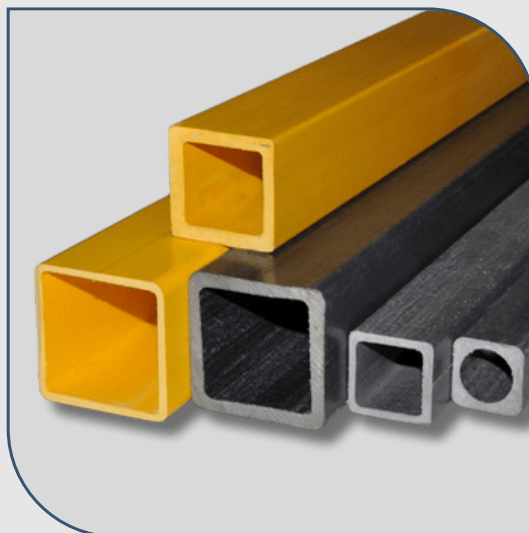
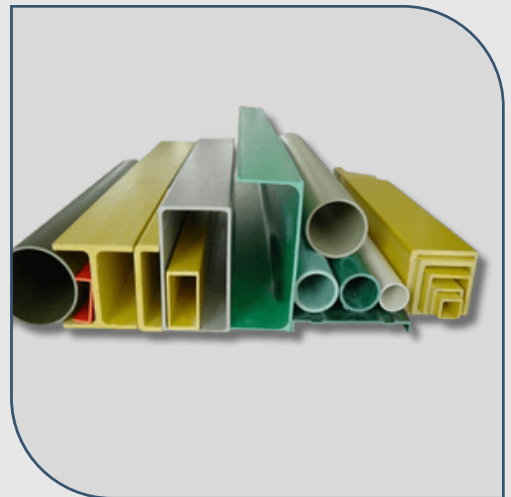
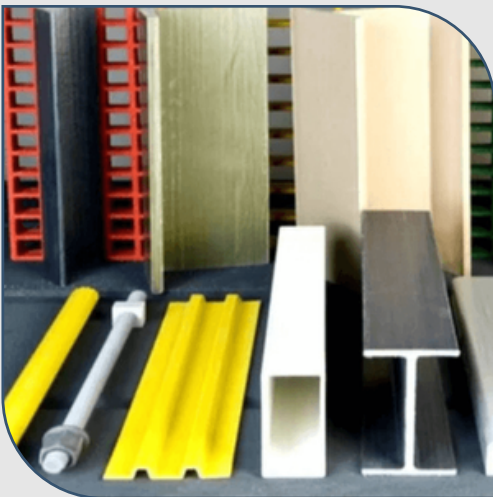
FRP Pultrudate Products

ECR / Epoxy / E-Glass Rods for Composite Insulator



Unity Fiber & Composite is engaged in manufacturing variety of Fiberglass Epoxy Pultruded profiles. These Fiber Glass Epoxy Profiles are used in electrical transformers, insulators, drop out fuses, heavy motors and other numerous applications.

Unity Fiber & Composite offer an extensive range of Epoxy Pultruded Profiles that are flame retardant and compatible with mechanical & electrical applications. Our Products are having a high mechanical strength at room temperature and superior electrical properties under humid or dry weather conditions.



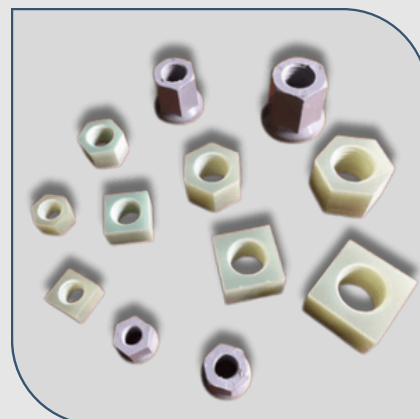
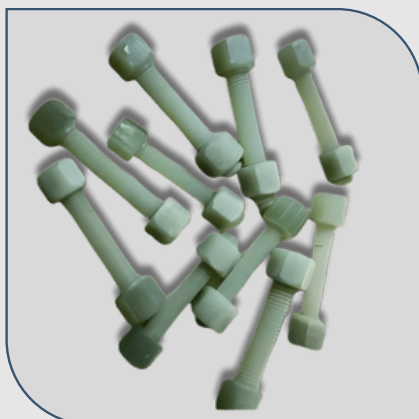
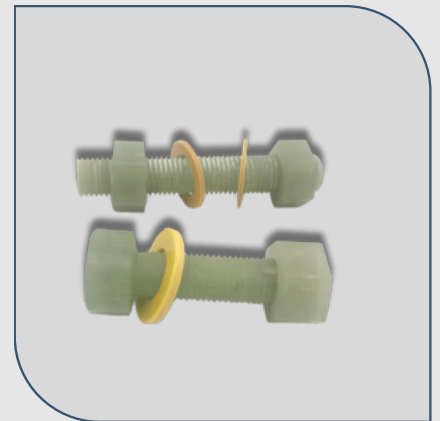
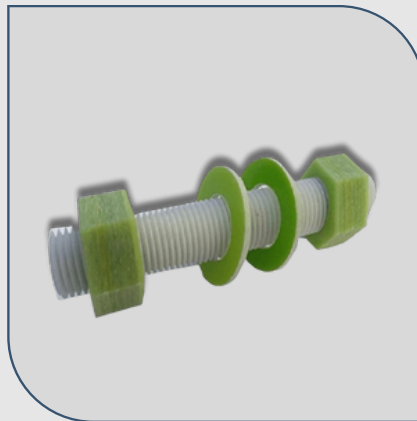
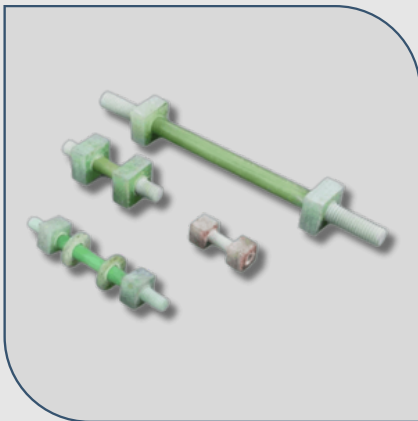
FRP threaded rod, Washer & NUT

Corrosion-Free Fastening Solutions for Harsh Environment



Unity Fiber & Composite offers a complete range of FRP (Fiber Reinforced Polymer) threaded rods, washers, and nuts designed for superior performance in corrosive, electrically sensitive, and chemically aggressive environments. Manufactured using high-strength fiberglass and durable resin systems, our composite fasteners offer excellent mechanical strength while being non-conductive, non-magnetic, and lightweight.

These FRP components are ideal replacements for traditional metal hardware where corrosion, weight, or electrical conductivity are a concern.



FRP Sheet

Strong, Lightweight & Corrosion-Resistant Composite Panels.



At Unity Fiber & Composite, we manufacture high-quality FRP (Fiber Reinforced Polymer) Sheets engineered for durability, strength, and long-lasting performance across a wide range of applications. Our FRP sheets are made by reinforcing thermosetting resins with glass fibers, resulting in lightweight yet highly durable panels that outperform traditional materials like metal, wood, and PVC in challenging environments.



High Strength-to-Weight Ratio: Strong and rigid, yet lightweight and easy to handle



Corrosion & Chemical Resistance: Performs exceptionally in acidic, humid, and coastal environments



Electrical Insulation: Non-conductive and suitable for electrical and telecom installations



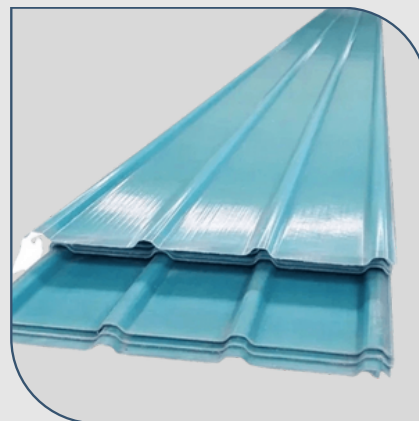
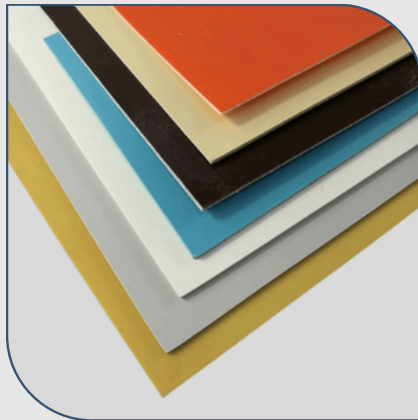
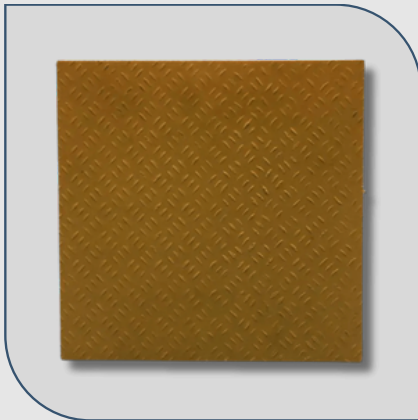
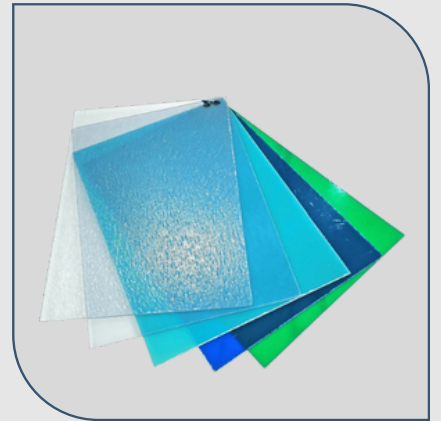
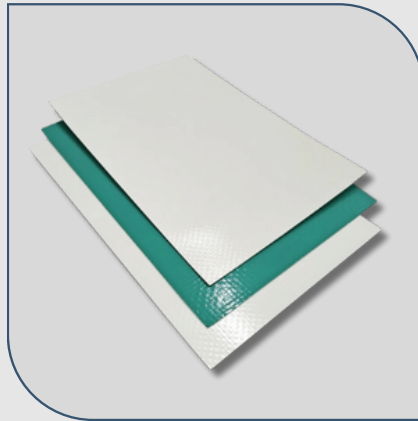
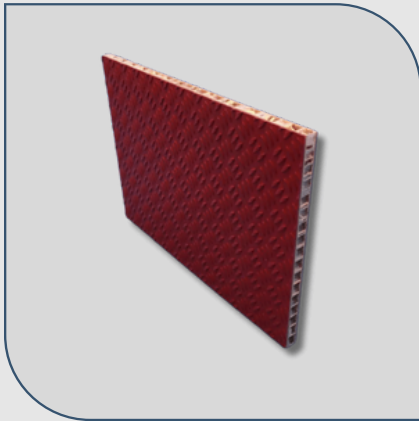
Fire Retardant Options Available: Compliant with industry safety standards



UV & Weather Resistant: Long-lasting performance in outdoor conditions



Low Maintenance: Does not rust, rot, or degrade like steel or wood



Applications



Polymeric Insulators



Transformers



LV-MV Drives



Switchgear Panels



Solar Inverters



Industrial UPS



Power Transmission Line Insulators



Power Distribution Line Insulators

VISION

Our vision is to be a trusted global leader in FRP manufacturing, recognized for our focus on quality, innovation, and sustainability. We strive to transform industries with smarter, lighter, and more durable composite materials—shaping a stronger, corrosion-free future.

MISSION

At Unity Fiber & Composite, our mission is to deliver high-quality, durable, and cost-effective FRP solutions through advanced pultrusion technology. We aim to support modern infrastructure and industrial needs by offering reliable, corrosion-resistant products backed by technical excellence, innovation, and customer commitment.

CONTACT US

India



Mr. Hiren Panchal
+91 78745 33121



hpunityfiber@gmail.com

USA



Jyotindrabhai N Patel
+1 407 791 5438
+91 87339 85303



jpunityfiber@gmail.com



Survey No 479,
Beside Narayan Powertech,
Opp - Sakhi Hotel, Padra - Vadodara Highway, Sangma, Padra, Vadodara.
Gujarat. INDIA 391440.