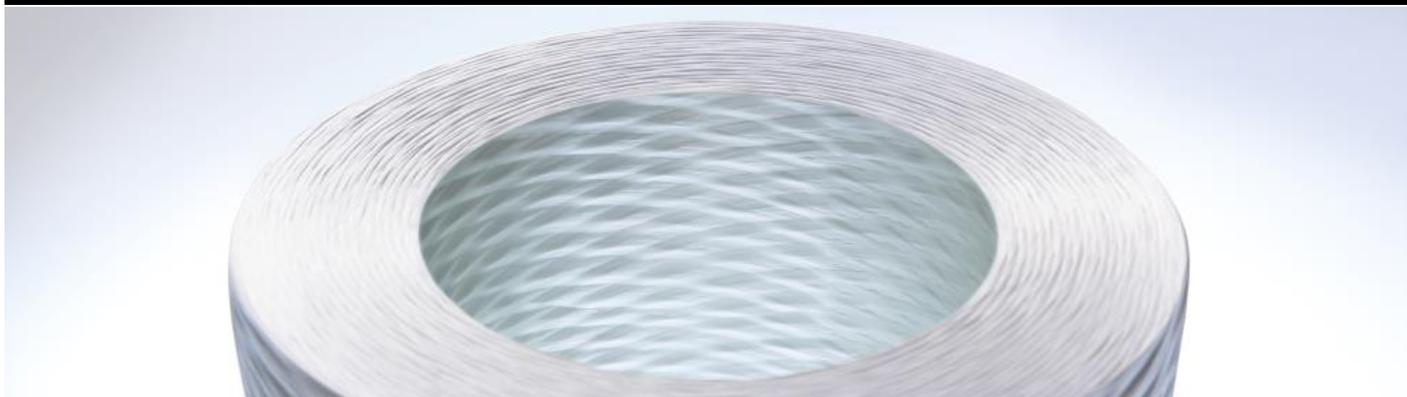
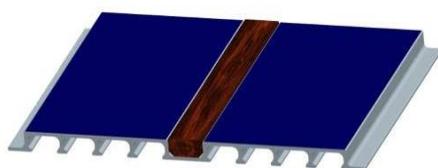


Composite Flooring from CIMC ECO

USING ADVANCED MATERIALS FOR LIGHTER, STRONGER AND MORE SUSTAINABLE CONTAINERS



CIMC ECO's composite flooring panels outperform conventional wood and plywood systems in durability and payload while at the same time providing significant weight savings.



The proprietary Advantex® / PulStrand™ / SPUA flooring design has successfully passed 3,000 cycles of fatigue testing with a load of 10,886 kg as well as small car testing with 7,260 kg.

CIMC ECO New Material Co. Ltd. has developed a glass-reinforced composite flooring panel system for use in its diversified portfolio of shipping containers. The system features innovative pultruded FRP structures made with **Advantex® glass 366** and **PulStrand™ 4100** roving from Owens Corning and underscores CIMC's mission of supplying secure, tough and durable lightweight container solutions for the global logistics market.

CHALLENGES

Traditional shipping containers have floor panels made of bamboo, tropical hardwood or plywood. Container users have been seeking to cut their maintenance costs for these systems, which need to be replaced every three to five years. At the same time, they are demanding flooring solutions that will provide greater strength, higher payloads and enhanced long-lasting durability.

SOLUTIONS

The new composite flooring panel system from CIMC ECO New Materials Co. Ltd. comprises fiber-reinforced structures using Owens Corning's Advantex® Glass 366 and PulStrand™ 4100 products. The components are pultruded and finished with a sprayed polyurea (SPUA) surface coating for protection against weathering, abrasion, chemical attack and water. The Advantex® glass product exhibits higher flexural strength and corrosion resistance than conventional E glass, is boron-free and facilitates pultrusion with fast wet-out and impregnation in all resin systems. PulStrand™ 4100 single-end rovings help to reduce fuzz by up to 92% over competitive products and are available in a wide range of tex/yield ratios for high design flexibility, optimizing both product performance and production efficiency. "The advanced glass roving products from Owens Corning gave us exactly the property profile and processability we had been looking for," says Steven Zhao, General Manager of CIMC ECO New Material Co. Ltd. "The result is a high-performance flooring system with superior strength-to-weight ratio and significantly lower cost-of-ownership for our global customers. Compared to traditional wooden or plywood panels, our composite structures with Advantex® glass and PulStrand™ roving last up to six times longer and provide substantial extra payload, which also makes them an ideal refurbishing solution."



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Floor properties	Bamboo-Wood	Plywood	FRP Composite
Weight per TEU*	330 kg		250 kg
Extra cargo payload**	–	312 tons	960 tons
Service life	3-5 years	3-5 years	> 20 years
Reuse rate	0%	0%	50%

* twenty-foot (6.1 m) equivalent unit

** per ship (12,000 TEU)

LEADING CONTAINER SPECIALISTS

Established in 2014, CIMC ECO New Material Co Ltd. is a joint venture between CIMC and Chinagrate, a specialist in fiberglass composite materials. As a member of China International Marine Containers (Group) Ltd. (CIMC), located in Shenzhen in Guangdong Province, the company is a leading manufacturer of cargo, refrigerated and specialty containers as well as modular building and flooring products. Its composite flooring panels using Owens Corning's Advantex® glass and PulStrand™ products are manufactured at CIMC ECO's plant in Nantong (Jiangsu Province). The system is designed for modularization and can be customized to various different container standards, including those of the 45' (13.7m) container and the U.S. cars and rail cargo transportation market.

BENEFITS

- Superior durability vs. chemically treated tropical hardwoods, bamboo and plywood
- Up to 32% lighter than competitive birch, oak or plywood panels
- Significantly greater strength and long-lasting (>20 years)
- High breakage resistance
- No delamination
- High flame retardancy
- Excellent stain resistance
- Bureau Veritas certification

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