

Flexible, lightweight and insulating: that's Fibroplast!



Yuri Pierini
Sales Manager

TecnoWall has developed Fibroplast, a newly-designed structural component, to replace the wood strips the recreational vehicles' walls include. With a 30% glass fibers content it is the most efficient material ever: flexible, lightweight and thermal insulating.

Words Antonio Mazzucchelli



An innovation was finally introduced also in the structural components that make up the body: the old wooden strips included in the campers and caravans sandwich walls now are gradually disappearing, replaced by more efficient bars built from inert materials. As we know, wood is a great material, but being alive it expands and contracts with changes in the surrounding temperature and humidity. These changes end up compromising the aesthetics of the vehicles' sides because in the long run they affect both the aluminum and the vetrorsina. Some years ago, TECNOWALL has launched two newly-designed product lines aimed at replacing the wood strips inside the panels of the vehicle sides, roof and floor. TecnoPlast, a high-performance polyurethane compound that employs only the finest material, and FibroPlast, with a

polyurethane-based composition containing about 30% of glass fibers, so that with a 25% lower weight compared to other materials we obtain the same mechanical characteristics of other comparable products designed for the same purpose. Produced in 780x4500 mm sheets, its thickness may vary upon request (up to 60 mm) and it is offered in three variants: FibroPlast 300, FibroPlast 350 and FibroPlast 400, according to the density value in kg/mc. "A 300 kg/m³ density is better than a 400 kg/m³ - Yuri Pierini, TecnoWall owner and commercial manager, says - the higher the density, the greater the weight and thus also the price, but the less thermal insulation properties. The wood weighs about 460 kg/m³ if we consider the most widely used fir wood, and has a high thermal conductivity. Today FibroPlast is the most efficient product on the market: elasticity and tensile strength are higher

compared to the marketed products with the same weight. Another qualifying peculiarity is that FibroPlast has an excellent fire-resistance because the high glass fibers content prevent the flames from spreading". Dimensionally stable, with an operating temperature limit of -40/+100° C, it is not subject to rotting thanks to a very low water absorption: after being immersed in water for 24 hours, it shows a volume change ranging between 0.2 and 0.3 % and a long term water absorption ranging between 2.6 and 2.8 %. By analyzing FibroPlast 300, we can easily understand that its thermal insulation capacity is excellent if compared to the density: thermal conductivity is only 0.041 W/m²K, with a linear thermal expansion coefficient of 0.044 %. The mechanical properties are excellent too, with a compressive strength greater than 12000 kPa and a flexural strength exceeding 13 N/sq.m.



Technical Data	Norm	Unit	FibroPlast 300	FibroPlast 350	FibroPlast 400
DENSITY	ISO 845	kg/m ³	300 ± 10%	350 ± 8%	400 ± 7%
THERMAL PROPERTIES					
Thermal conductivity	UNI EN 13165	W/m ² K	0,041	0,043	0,049
Coefficient of linear thermal expansion		%	0,044	0,049	0,059
Glass transition temperature	DMA (3 point bending)	°C	>140	>140	>145
Temperature limits in use		°C	-0,4	-0,4	-0,4
COMPRESSION RESISTANCE WITH DEFORMATION OF 10%					
Parallel to the fibres direction	ISO 844	kPa	>12000	>13000	>15500
Perpendicular to the fibres direction	ISO 844	kPa	>4000	>4100	>4500
FLEXURAL STRENGTH	UNI EN ISO 178	N/mm ²	>13	>21	>23
ELASTIC MODULUS	ISO 527-2	N/mm ²	>430	>500	>750
FLEXURAL MODULUS	UNI EN ISO 178	N/mm ²	>680	>1050	>1100
FRIABILITY	ASTM C 421	%	<1	<1	<0,5
TENSILE STRENGTH	ISO 572-2	N/mm ²	>9	>15	>15
IMPACT RESISTANCE	DIN EN ISO 179-2	kJ/m ²	>16	>20	>22
ELONGATION AT BREAK	ISO 527-2	%	>1,5	>1,8	>2,2
SCREW EXTRACTION RESISTANCE					
Parallel to the fibres direction	Pull-out test	(N)	>800	>1420	>1600
Perpendicular to the fibres direction	Pull-out test	(N)	>950	>1640	>1800
WATER BEHAVIOUR					
Long term water absorption	EN 12087	%	<2,6	<2,7	<2,8
Dimensional change after 24 hours in the water		%	<0,3	<0,2	<0,2
REACTION TO FIRE	UL94		V-1	V-2	V-2



Company Profile

TecnoWall was founded in 2001 in Tavarnelle Val di Pesa, initially working with manufacturers such as Arca and Mirage, supplying sandwich panels for motorhome shells. In 2006, the production site was transferred to Poggibonsi, and in 2009 the production surface area was doubled. Today, the company employs about twenty people, availing itself of a covered production structure of 5,800 sq m. TecnoWall manufactures shells for recreational vehicles, supplying vehicle out-fitters with sandwich panels for walls, roofs and floorings. It makes use of a variety of internal materials: from traditional expanded polystyrene (EPS) to more modern extruded polystyrene foam (XPS), as well as closed cell PVC, PU and honeycomb polypropylene. Traditional wooden battening is combined with frames in polyurethane strips, and even polyurethane with embedded metal reinforcements. With an extensive presence in the European recreational vehicle market, TecnoWall also maintains business relations with manufacturers in China, Australia and South Africa. Although the motorhome sector is its predominant line of business, the company also supplies naval shipyards and heavy transportation vehicles, in addition to producing panels for pre-fabricated and mobile homes. TecnoWall has obtained UNI EN ISO 9001:2000 certification.

