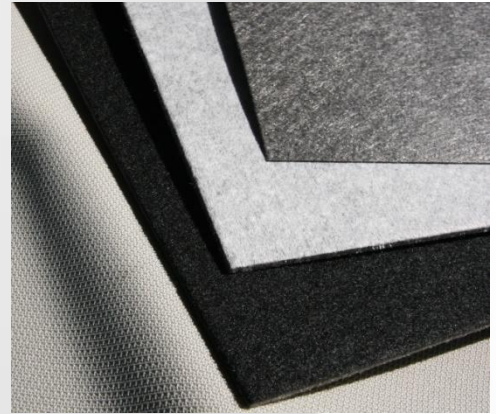


You Inspire... We Materialize

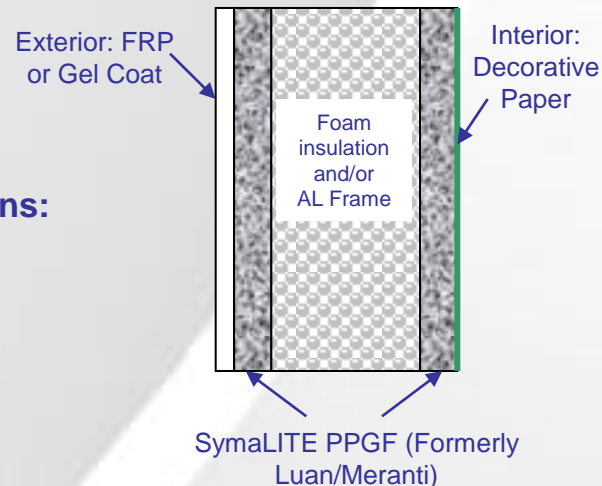
SymaLITE™ Thermoplastic Composite Sheet Panels: Lightweight Panels to replace Luan/Meranti Plywood in Recreational Vehicles

Quadrant's SymaLITE™ lightweight reinforced thermoplastic composite is ideal for replacement of Luan/Meranti Plywood and Uni-core for Exterior (to FRP) or Interior applications.

- 33% lighter weight than Luan/Meranti
- Moisture and mold resistant
- Will not swell when exposed to water
- Bonds well to most glues
- Formaldehyde Free "GreenGuard Tested"
- Recyclable
- Can be produced in multiple thicknesses and sizes
- Can saw, cut and route like plywood with less dust
- Meets FMVSS 302 burn rates
- Meets ASTM E84 flame and smoke test "Bodycote tested"
- Absorbs noise and insulates
- Material safety data sheets available



RV Side Wall Profile



Materials Technology:

SymaLITE™ Thermoplastic Composite Panels:

Resin Matrix: Polypropylene (PP)

Reinforcement: Long glass fiber technology

Material designs customized to your specifications:

Glue Systems

- Hot Melt PU
- Two Part PU glue
- EVA Water based
- Gel Coat Polyester

Bonding/Lamination Systems

- Vacuum Bag (4 to 14 Hg tested)
- Pinch Rollers
- Bead gravity fed applicators
- Spray (Manual and robotic)

Applications:

Unique panels replace Luan/Meranti and Uni-core for Interior and Exterior walls, ceiling and floor structures

SymaLITE™ Thermoplastic Composites can be customized to achieve an optimized price vs performance target

A Different Kind of Supplier:

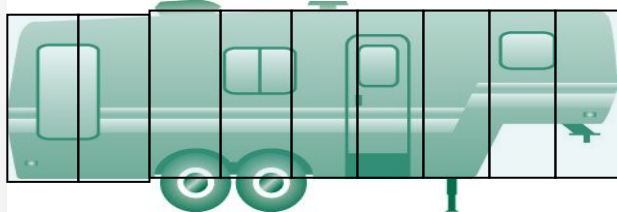
Quadrant Plastic Composites is well known for its focus on application development and technical service. We provide this unique support to our customers worldwide. Our teams in Europe, North America, and Asia have the experience to provide design, simulation and physical testing support using the latest technologies. We also provide on-site technical service support.



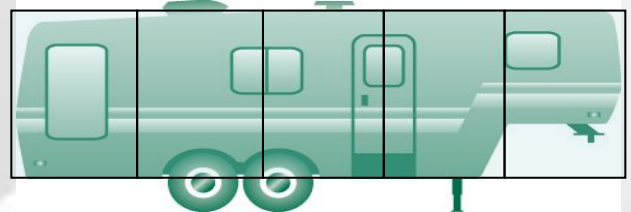
Material Comparison	SymaLITE PP+GF sheet	Luan/Meranti plywood
2.2 mm thickness availability	Yes (*800 to 1000 gsm)	Not available
2.7 mm thickness availability	Yes (*800 to 1200 gsm)	Standard (1500 gsm)
3.6 mm thickness availability	Yes (*1100 to 1500 gsm)	Standard
5.2 mm thickness availability	Yes (*1500 to 2100 gsm)	Standard
Thickness variation	+or- 0.3 mm (in-line computer controlled)	Varies
Length/Width Tolerances	Machine Direction (+ or – 5.0 mm), Cross Direction (+ or – 3.0 mm)	Varies
Expansion/contraction due to humidity	<1.0 %	~12%
Chemical resistance (oil, etc)	excellent	poor
Standard sizes	Available in 4 ft x 7ft, 8ft & 20ft (custom sizes available at no extra costs)	4 ft width x 8 ft or 16 ft length
Maximum Width	96 in	48 in
Maximum Length	20 ft (40 ft feasible for future)	16 ft
Impact Testing (ASTM D3763-06, -20 F to +187 F) 2.2m/sec	+44% vs plywood	Base Line
Adhesion (max Pull out test)	325 psi	250 to 325 psi
Seam reduction potential	High	Not available
Ability to coil	Feasible	Not capable

* Higher gsm (grams per square meter) yields improved bending stiffness

Improved quality through seam reduction (example):



Standard 4 ft wide panels (8 seams)



8 ft wide panels (4 seams)



Manufacturing:
Guelph, Ontario Canada
Lotte, Germany



™SymaLITE is a registered trademark of Quadrant Plastic Composites AG. © Quadrant Plastic Composites, Inc. 2009. All Rights Reserved.

SymaLITE™ Thermoplastic Composite Sheet Panels:

Features and Benefits vs. Luan:

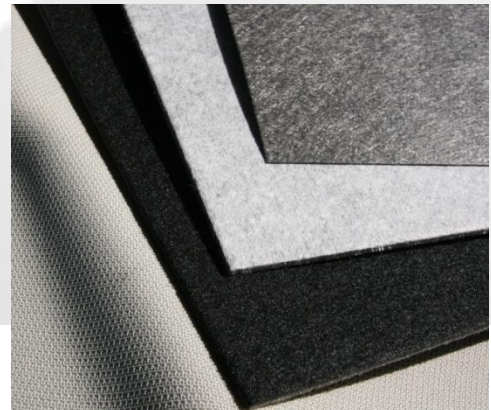
1. Formaldehyde test results below quantifiable levels (<0.001 ppm)
2. Moisture and Chemical resistance: Will not rot or swell
3. Weight savings: >35% (less than wood)
4. Product: Engineered composite material (Quality, Consistency, Reduced Scrap)
5. Sheet Sizes: standard or customized (cost savings, seamless, etc.)
6. Available film technology reduces required glue weights
7. Product consistency: (Lot to lot, environment, etc.)
8. Impact resistance: Significantly better (greater durability)
9. VOC levels 3x below Greenguard certification levels
10. Recyclable
11. Manufactured to TS 16949 specifications

Features and Benefits vs. Competitive Composites:

1. Tensile strength in Z direction greater than 10:1 over other solutions
2. Higher surface quality
3. Wide range of available sizes: 4'x7' 4'x8' 4'x9' and custom
4. Width available to 8' ft – Length to 20' ft
5. Available film technology reduces required glue weights
6. Reduced thickness variation

Applications:

- Wall Systems
 - Exterior substrate
 - Interior substrate
 - Ceiling Panels
- Structural Close-Out Panels
 - Slide Out Floors
 - “B” Side Cap Panels
 - Bunk Beds
- Roof Systems
 - Substrate
- Cabinets and Doors



SymaLITE™ Products

Product Code	Thickness (mm)	Side A scrim or film	Side B scrim or film	Exterior vs Interior	Total Area Weight (grams/meter ²)	Total Area Weight (4' x 8' sheet)
SL103G50L0811-2.7	2.7 mm	Naked	Naked	Exterior	800	2.38 kg (5.25 lb)
SL103G50L0911-2.7	2.7 mm	Naked	Naked	Exterior	900	2.68 kg (5.91 lb)
SL103G50L1011-2.7	2.7 mm	Naked	Naked	Exterior	1000	2.97 kg (6.55 lb)
SL103G50L08S2S2-2.2	2.2 mm	White Scrim	White Scrim	Interior	936	2.78 kg (6.13 lb)
SL103G50L08S2T01-2.2	2.2 mm	White Scrim	Film	Both	938	2.79 kg (6.15 lb)
SL103G50L09S2S2-2.7	2.7 mm	White Scrim	White Scrim	Interior	1036	3.08 kg (6.79 lb)
SL103G50L09S2T01-2.7	2.7 mm	White Scrim	Film	Both	1038	3.09 kg (6.81 lb)
SL103G50L09T01T01-2.7	2.7 mm	Film	Film	Interior	1040	3.10 kg (6.82 lb)
<i>Luan</i>	<i>2.7 mm</i>	<i>NA</i>	<i>NA</i>	<i>Both</i>	<i>1500</i>	<i>4.46 kg (9.823 lb)</i>

