



SOLVAY

asking more from chemistry®

Leading Composite Material Solutions for the
Marine Industry

**COMPOSITE
MATERIALS**

As the supplier of choice for structural and tooling prepregs, and vacuum bagging consumables to the marine industry, Solvay offers quality, custom-made products as well as world-class experience and technical support to its customers, worldwide.



We are actively involved in the production of boats, race boats, super yachts, and commercial and naval craft.

Many of the race yachts built with our materials have enjoyed an outstanding history of success in high profile race campaigns, including the America's Cup, the Volvo Ocean Race and the Audi MedCup.



Leisure marine application



Class Leading Technology

- Epoxy, phenolic, cyanate ester, bismaleimide and vinylester prepregs
- Flame-retarded composite materials
- Film adhesives
- Vacuum bagging consumables
- Pioneering resin infusion network plans
- Consumables kitting service and customized reusable vacuum systems, to increase productivity and reduce waste

Composite Materials

- Ease of use with a broad processing window
- Ideal for thick monolithic and lightweight sandwich structures
- Provide an excellent surface finish
- Offer a combination of good mechanical performance and toughness
- Supplied across a wide range of fabrics and fibers

Composite Materials Product Selector Guide

Sport and Leisure Marine

Prepregs

Product	Out Life (days)	Service Temp °F (°C)	Cure Flexibility °F (°C)	Cure Method	Tg (DMA Onset) °F (°C)*	Tack Level
CYCOM® 754	30	266 (130)	160-255 (70-125)	Vacuum	198 (92)	Intermediate
MTM® 28	30	176 (80)	185-248 (85-120)	Press/Autoclave	212 (100)	Intermediate
MTM® 57	30	221 (105)	176-248 (80-120)	Press/Autoclave	260 (125)	Intermediate
MTM® 57-2	30	221 (105)	175-250 (80-120)	Vacuum/Autoclave	260 (125)	Low
VTM® 264	30	212 (100)	149-248 (65-120)	Vacuum	248 (120)	Intermediate
VTM® 264-1	30	212 (100)	149-248 (65-120)	Vacuum	248 (120)	Intermediate
VTM® 264S-1	30	212 (100)	149-248 (65-120)	Vacuum	248 (120)	Low-intermediate
VTM® 266	30	212 (100)	149-248 (65-120)	Vacuum	248 (120)	High
VTM® 267	21	212 (100)	149-248 (65-120)	Vacuum	248 (120)	Low

Surfacing and adhesive films:

Product	Out Life (days)	Min. Cure °F (°C)	Available formats	Notes
VTF266	30	149 (65)	Supported/unsupported film	Surface improvement film compatible with VTM® 260 series prepregs. Molds to be sandable, paint-ready finish
VFT261 (cosmetic)	21	149 (65)	Woven/ZPREG®	Transparent surface material offering reduced pinhole surface for clear coated carbon finish components. Also in white
VTA® 260	30	149 (65)	Supported/unsupported adhesive film	Use with VTM®/MTM® prepregs. Available with reinforcement carrier to aid placement or non-supported as a resin film

Industrial Marine

Product	Out Life (days)	Service Temp °F (°C)	Cure Flexibility °F (°C)	Cure Method	Tg (DMA Onset) °F (°C)*	Tack Level
Standard epoxy prepregs:						
MTM® 57	30	221 (105)	176-248 (80-120)	Press/Autoclave	260 (125)	Intermediate
Flame-retarded epoxy prepregs:						
VTM® 264 FRB**	30	212 (100)	149-248 (65-120)	Vacuum	248 (120)	Intermediate
VTM® 267 FRB	21	212 (100)	149-248 (65-120)	Vacuum	248 (120)	Intermediate
Flame-retarded phenolic prepregs:						
MTM® 80S	30	480 (250)	284-320 (140-160)	Press/Vacuum/Autoclave	610 (320)	Intermediate
MTM® 82S-C**	30	176 (80)	176-356 (80-180)	Press/Vacuum/Autoclave	320-338 (170-180)	Intermediate

Case Study: H2X uses Solvay's Resin Infusion Consumables

H2X shipyard constructed the 100% composite 36m "André Malraux" ship for the French Ministry of Culture.

The infusion process to manufacture the hull, deck and internal walls was carried out using Solvay process materials products, including vacuum bagging film, sealant tape, combination products and flow media that help the resin transfer, spray adhesive, infusion spider and hose.

These products have all been developed with low temperature, infusion process in mind and make them ideal to manufacture large marine components.

Benefits that Solvay brought to H2S were:

- A range of highly performing products developed specifically for infusion processing
- Outstanding technical customer support
- Reactiveness to customers' needs and on-time delivery

"André Malraux" ship



Process Materials

Solvay offers a comprehensive range of composites processing materials and consumables optimized for the high performance and production marine markets.

Prepreg Processing

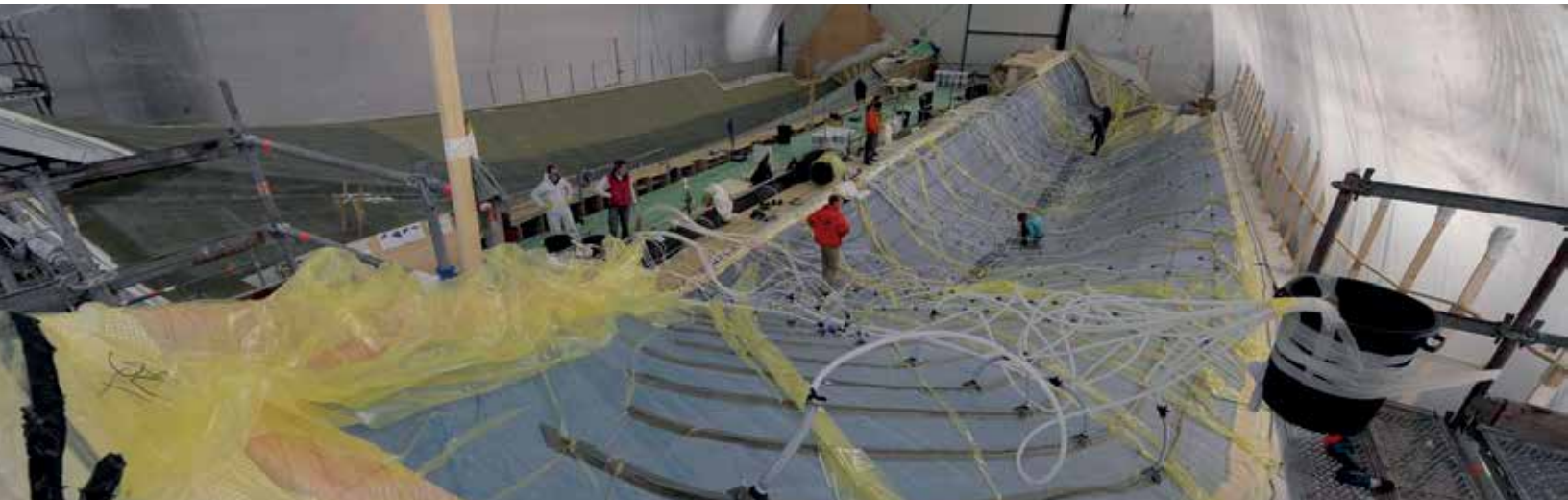
A select range of consumables for high temperature curing (over 212°F/100°C), includes:

- VACFILM™ 200G 248°F (120°C) up to 16 MT. wide bagging film
- VACFILM™ 450V 338°F (170°C) vacuum bagging film
- High air flow breathers
- High temperature sealant tapes
- Quick release/high temperature peel ply
- Flash tapes

Resin Infusion Processing

Consumables designed to cater for resin infusion processing, reducing labor costs, minimizing scrap rate and improving part repeatability:

- INFUPLY (248°F/120°C) perforated release film with knitted infusion mesh - promotes resin transfer and strips easily from the laminate
- VMS3 (320°F/160°C) vacuum medium strip, promotes vacuum flow across wet impregnated zones
- CW3 HDPE mesh and a thin polyester non-woven sleeve used for matrix transfer
- Welded/tailored vacuum bags, reusable vacuum bags and kitted consumables for cost optimization



Resin infusion processing by H2X

Process Materials Product Selector Guide

Prepreg Product	Bagging Film	Release Film	Sealant Tape	Peel Ply	Breather	Flash Tape	Hose	Valve
250°F (120°C) Epoxy OOA	VACFILM™ 450V	A2000	LTS90B	A100PS A80GPS B100	AB10 AB80 AB200	All Flashtapes	Silhose	VBU25TP2 VBU25TP3
250°F (120°C) Epoxy in-autoclave	VACFILM™ 450V	A2000	LTS90B	A100PS A80GPS B100	AB10 AB100 AB120 AB200	All Flashtapes	VACHOSE	VBU25TP2 VBU25TP3
350°F (180°C) Epoxy OOA	VACFILM™ 800G	A6000 A5000 A2500 MR FILM	UCS180 SM5142 SM5130 SM5127	60001 A100PS B100	AB10 AB100 AB120 AB200	All Flashtapes	VACHOSE	VBU25TP2 VBU25TP3
350°F (180°C) Epoxy in-autoclave	VACFILM™ 800G STRETCH-VAC™ 3000 STRETCH-VAC™ 6000	A6000 A5000 A2500 MR FILM	UCS180 SM5142 SM5130 SM5127	60001 A100PS B100	AB10 AB100 AB120 AB200	All Flashtapes	VACHOSE 93S	VBU25TP2 VBU25TP3
Phenolic	VACFILM™ 450V		UCS180 SM5142 SM5130 SM5127	G500 F400 A85PS 60001	AB10 AB100 AB120 AB200	All Flashtapes	VACHOSE	VBU25TP2 VBU25TP3
BMI	STRETCH-VAC™ 6000	MR FILM	SM 5126	FF03 FF05 FF10PM	AB20N AB33N	All Flashtapes	93S	VBU25TP2 VBU25TP3
Epoxy Infusion	VACFILM™ 200G VACFILM™ 400Y	A2200P31	LTS90B SM5142	A100PS A80GPS FF03 FF05 FF10PM	INFUPLY Vi1 Vi2 Vi5	I-TAPE	T12 T16	I-MAN connectors
Polyester Infusion	VACFILM™ 200G VACFILM™ 400Y	A2200P31	LTS90B	A100PS A80GPS FF03 FF05 FF10PM	INFUPLY Vi1 Vi2 Vi5	I-TAPE	T12 T16	I-MAN connectors

Tooling

Our tooling prepregs offer outstanding surface finish and longevity for the manufacture of complex mold tools. Our design service can support tool design optimization to ensure a fit-for-purpose solution. In addition we offer soft tooling technology including reusable vacuum bags, integral heater blankets, intensifiers and caul sheets.

Tooling Product Selector Guide

	Product Form	Out Life (days)	Service Temp. °F (°C)	Cure Flexibility/ Recommended Cure °F (°C)	Cure Method
LTM® 217	Epoxy Prepreg	8	356 (180)	20 hours at 131 (55) or 5 hours at 176 (80) Post-cure 15 minutes at 392 (200) plus 8 hours at 374 (190)	Vacuum/ Autoclave
LTS 317	Syntactic Core	21	302 (150)	24 hours at 150 (65) or 1 hour at 248 (120) Post-cure 2 hours at 356 (180)	Vacuum/ Autoclave
LTM® 317-1B	Epoxy Prepreg	30	302 (150)	16 hours at 150 (65) or 5 hours at 176 (80) Post-cure 2 hours at 302 (150)	Vacuum/ Autoclave
LTF318B/ LTF 318U	Epoxy Prepreg	7	356 (180)	16 hours at 150 (65) or 5 hours at 176 (80) Post-cure 15 minutes at 392 (200) plus 8 hours at 374 (190)	Vacuum/ Autoclave



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