



PROBUILD

Probuild Fast, Medium, Slow, Tropical Hardeners

Technical Data Sheet

EPOXY LAMINATING SYSTEM

For Laminating, Excellent Properties, UV-Resistant

DESCRIPTION

ProBuild Marine Epoxy Systems are convenient, easy-to-use, 100% solids systems developed solely for building, repairing or restoring any type of marine vessel. The versatility of the ProBuild epoxy systems make them ideal for use in standard wet lay-up, vacuum bagging or resin infusion operations with a wide range of reinforcements. These systems can also be mixed with a variety of fillers for fairing, filleting or bonding applications. ProBuild marine epoxy systems consist of one base resin and a selection of four separate hardeners to suit your application needs. These systems are all mixed at convenient 3:1 volumetric mix ratios and can be metered through our calibrated push pumps or various types of dispensing equipment, which eliminates the need for scales or guesswork associated with other types of epoxy systems. In addition to the high strength and durability of the ProBuild epoxy systems, the low viscosity allows for better wet-out resulting in lighter, stronger, void-free parts without experiencing run out on vertical surfaces. The unique chemistry of the ProBuild systems provides maximum physical properties, reduces curing exotherm and minimizes blush, making these systems more trouble free than ever for the marine craftsman and architect. For long term performance and lower maintenance, try one of the ProBuild systems today.

APPLICATIONS

- High performance marine boats, parts, and tooling applications
- Suitable for wet layup and vacuum-bagging

PROPERTIES

- Low viscosity for excellent wet-out
- Four hardener choices (fast/medium/slow)
- UV resistant
- Above or below waterline applications
- RoHS and REACH compliant
- Epoxy (non-styrene)
- Excellent bond to all fabrics
- Suitable for aramid fiber laminates

Physical Properties						
	Test Method	Probuild Resin	Fast Hardener	Medium Hardener	Slow Hardener	Tropical Hardener
Composition		Epoxy	Amine	Amine	Amine	
Mix Ratio, by weight		100	28	28	28	28
Appearance		Clear Liquid	Clear Liquid	Clear Liquid	Clear Liquid	Clear Liquid
Color		Light Amber	Light Amber	Light Amber	Light Amber	Light Amber
Viscosity @ 77°F (25°C) Cps.and mPa.s	Brookfield LVT	7,405	61	65	54	37
Density @ 77°F (25°C) lbs./gal. (g/cc)	ASTM D 1480	9.58 (1.15)	8.12 (.97)	8.04 (.97)	8.0 (.96)	7.98 (.96)
Viscosity, mixed @ 77°F (25°C) Cps.and mPa.s	Brookfield LVT		852	916	760	484
Gel time, 235 g at 77°F (25°C)	Minutes		15	39	70	139

SikaAxson US
+1 248 588 2270
axsonmh@axson.com
sikaaxson.us

CHINA
+86 21 58 68 30 37
marketing.china@axson.com
MEXICO
+52 55 52 64 49 22
marketing@axson.com.mx

FRANCE
+33 1 34 40 34 60
axson@axson.com
SLOVAKIA
+42 1 76 42 25 26
axson.sk@axson.com

INDIA
+91 20 25 56 07 10-11
info.india@axson.com
SPAIN
+34 9 32 25 16 20
spain@axson.com

ITALY
+39 02 96 70 23 36
axson@axson.it
U.K.
+44 16 38 66 00 62
sales.uk@axson.com

JAPAN
+81 5 64 26 25 91
sales.japan@axson.com

SIKA GERMANY – SikaAxson
+49 7125 940 492
tooling@de.sika.com
www.sikaaxson.de



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Neat Cured Properties Tested at 74°F (23°C)

*R.T. and **Heat Cured

	Test Method	Unit(s)	Fast Hardener	Medium Hardener	Slow Hardener	Tropical Hardener
Glass Transition Temperature (Tg) * R.T. Cure **212°F Post-Cure	ASTM E1545	°F (°C)	121 (49.1) 185 (85)	117 (47) 155 (68.6)	143 (61.7) 141 (61)	113 (45) 152 (67)
Hardness * R.T. Cure **212°F Post-Cure	ASTM D-2240	Shore D	86 86	86 87	81 86	85 85
Flexural Strength * R.T. Cure **212°F Post-Cure	ASTM D790	psi (MPa)	10,868 (75) 12,316 (85)	10,420 (72) 16,604 (115)	10,936 (75) 16,776 (116)	10,983 (76) 16,730 (115)
Flexural Modulus * R.T. Cure **212°F Post-Cure	ASTM D790	psi (MPa)	604,825 (4173) 516,728 (3565)	537,409 (3957) 473,568 (3268)	538,025 470,439	573,174 485,429
Tensile Strength * R.T. Cure **212°F Post-Cure	ASTM D638	psi (MPa)	8,434 (58.2) 12,316 (85)	7,558 (52.2) 7,572 (52.2)	8,365 (57.7) 11,770 (81.2)	8,656 (59.7) 10,093 (69.6)
Tensile Modulus * R.T. Cure **212°F Post-Cure	ASTM D638	psi (MPa)	351,095 (2,423) 307,540 (2,122)	319,166 (2,202) 284,808 (1,965)	336,458 (2,322) 368,515 (2,543)	313,476 (2,163) 277,474 (1,915)
Tensile Elongation * R.T. Cure **212°F Post-Cure	ASTM-D638	%	2.7 5.8	2.7 3.4	2.8 4.6	3.1 5.2
Moisture Absorption * R.T. Cure	ASTM D-570	%	.36	.38	.37	.31

*Cured-7 days at 77°F (25°C) **Cured 4 hours at 212°F (100°C)

Results are average values on laboratory prepared test samples

SikaAxson US
+1 248 588 2270
axsonmh@axson.com
sikaaxson.us

CHINA
+86 21 58 68 30 37
marketing.china@axson.com
MEXICO
+52 55 52 64 49 22
marketing@axson.com.mx

FRANCE
+33 1 34 40 34 60
axson@axson.com
SLOVAKIA
+42 1 76 42 25 26
axson.sk@axson.com

INDIA
+91 20 25 56 07 10-11
info.india@axson.com
SPAIN
+34 9 32 25 16 20
spain@axson.com

ITALY
+39 02 96 70 23 36
axson@axson.it
U.K.
+44 16 38 66 00 62
sales.uk@axson.com

JAPAN
+81 5 64 26 25 91
sales.japan@axson.com

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+49 7125 940 492
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Composite Cured Properties Tested at 74°F (23°C)* Room Temperature Cured**

	Test Method	Unit(s)	Fast Hardener	Medium Hardener	Slow Hardener	Tropical Hardener
Flexural Strength	ASTM D790	psi (MPa)	43,640 (301)	36,749 (254)	40,339 (278)	33,510 (231)
Flexural Modulus	ASTM D790	psi (MPa)	2,036,440 (14,051)	1,896,212 (13,084)	2,049,299 (14,140)	2,064,646 (14,246)
Tensile Strength	ASTM D638	psi (MPa)	36,830 (254)	37,409 (258)	38,720 (267)	40,064 (276)
Tensile Modulus	ASTM D638	psi (MPa)	808,944 (5,582)	882,055 (6,086)	916,579 (6,324)	1,000,761 (6,905)
Tensile Elongation	ASTM D638	%	6.9	6.7	6.4	6.4

*Average values on laboratory prepared test samples, **Cured 7 days at 77°F (25°C)

Composite layup – 8 layers, Volan A 7500 10 oz. glass cloth, Plain weave, 0-90°rotation, Vacuum bagged. Resin laminate content was 46% (by wt.) for Probuild Fast, 40% for Probuild Medium, 40% for Probuild Slow, 33% for Probuild Tropical.

Composite Cured Properties Tested at 74°F (23°C)* Heat Cured**

	Test Method	Unit(s)	Fast Hardener	Medium Hardener	Slow Hardener	Tropical Hardener
Flexural Strength	ASTM D790	psi (MPa)	43,797 (302)	40,750 (281)	44,350 (306)	39,122 (270)
Flexural Modulus	ASTM D790	psi (MPa)	1,939,370 (13,381)	1,839,269 (12,690)	1,952,610 (13,473)	2,044,676 (14,108)
Tensile Strength	ASTM D638	psi (MPa)	34,707 (239)	32,986 (228)	34,771 (240)	36,562 (252)
Tensile Modulus	ASTM D638	psi (MPa)	752,633 (5,193)	895,400 (6,178)	932,288 (6,433)	942,929 (6,506)
Tensile Elongation	ASTM D638	%	6.5	5.5	5.5	5.8

*Average values on laboratory prepared test samples, **Cured 16 – 24 hrs at 77°F (25°C) + 4 Hours @ 212°F (100°C)

Composite layup – 8 layers, Volan A 7500 10 oz. glass cloth, Plain Weave, 0-90°rotation, Vacuum bagged. Resin laminate content was 46% (by wt.) for Probuild Fast, 40% for Probuild Medium, 40% for Probuild Slow, 33% for Probuild Tropical.

PROCESSING

After mixing according to the indicated ratio impregnate the reinforcement according to the selected process.

SikaAxson US +1 248 588 2270 axsonmh@axson.com sikaaxson.us	CHINA +86 21 58 68 30 37 marketing.china@axson.com MEXICO +52 55 52 64 49 22 marketing@axson.com.mx	FRANCE +33 1 34 40 34 60 axson@axson.com SLOVAKIA +42 1 76 42 25 26 axson.sk@axson.com	INDIA +91 20 25 56 07 10-11 info.india@axson.com SPAIN +34 9 32 25 16 20 spain@axson.com	ITALY +39 02 96 70 23 36 axson@axson.it U.K. +44 16 38 66 00 62 sales.uk@axson.com	JAPAN +81 5 64 26 25 91 sales.japan@axson.com	SIKA GERMANY – SikaAxson +49 7125 940 492 tooling@de.sika.com www.sikaaxson.de
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Accelerated cure schedule: The laminate can be immediately placed into up to 150°F (66°C) oven for three hours.
Normal cure schedule: Allow to set 24 hours at room temperature, then post cure up to 200°F if needed.

STORAGE CONDITIONS

This product has a shelf life of 12 months as indicated by the expiration date on the container when stored in original unopened containers between 59 – 77°F (15 – 25°C). Any opened can must be tightly closed.

HANDLING PRECAUTIONS

Normal health and safety precautions should be observed when handling these products :

- Ensure good ventilation
- Wear gloves, and safety glasses

For additional information, please consult the Safety Data Sheet (SDS).

DISCLAIMER

The information contained in this technical data sheet results from research and tests conducted in our laboratories under precise conditions. Seller cannot anticipate all conditions under which seller's products, or the products of other manufacturers in combination with seller's products, may be used. It is the responsibility of the user to determine the suitability of the SikaAxson's products, under their own conditions, before commencing with the proposed application. In no event shall SikaAxson US be liable for any direct, indirect, punitive, incidental, special, and/or consequential damages, to property or life, whatsoever arising out of or connected with the use or misuse of our products.

<p>SikaAxson US +1 248 588 2270 axsonmh@axson.com sikaaxson.us</p>	<p>CHINA +86 21 58 68 30 37 marketing.china@axson.com</p> <p>MEXICO +52 55 52 64 49 22 marketing@axson.com.mx</p>	<p>FRANCE +33 1 34 40 34 60 axson@axson.com</p> <p>SLOVAKIA +42 1 76 42 25 26 axson.sk@axson.com</p>	<p>INDIA +91 20 25 56 07 10-11 info.india@axson.com</p> <p>SPAIN +34 9 32 25 16 20 spain@axson.com</p>	<p>ITALY +39 02 96 70 23 36 axson@axson.it</p> <p>U.K. +44 16 38 66 00 62 sales.uk@axson.com</p>	<p>JAPAN +81 5 64 26 25 91 sales.japan@axson.com</p>	<p>SIKA GERMANY – SikaAxson +49 7125 940 492 tooling@de.sika.com www.sikaaxson.de</p>
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