BUILDING TRUST

TECHNICAL DATA SHEET

SikaBiresin® CR72 with CH72-1 (Fast), CH72-2 (Medium), CH72-3 (Slow) hardeners

(FORMERLY MARINE 820)

EPOXY LAMINATING SYSTEM
VARIABLE HARDENERS, LAMINATING OR INFUSION, UV-RESISTANT

DESCRIPTION

SikaBiresin® CR72 Epoxy Laminating Systems are 100% solids systems developed for the fabrication and repair of high performance composite structures. SikaBiresin® CR72 consists of one resin and a selection of three separate hardeners to suit your building or repair needs. The resin and hardener combinations produce low viscosity mixtures with convenient volumetric mix ratios. In addition, SikaBiresin® CR72 is specially formulated for standard wet lay-up or resin-infusion operations requiring the highest degree of fabric wetting and air release attributes. The systems are specifically engineered to promote a high fiber-to-resin ratio and a greater interface with composite fabric(s), thereby resulting in lighter, stronger parts offering lower maintenance and long-term performance.

PROPERTIES

- Low viscosity for excellent wet-out
- R.T. cured and post-cured options
- Variable pot life/working time options
- Above and below waterline use
- Low mixed viscosity
- UV resistant
- Hardener blending an option
- Excellent bond to all fabrics

PHYSICAL PROPERTIES – CR72/**CH72-1 (Fast)**

Composition			RESIN SikaBiresin® CR72	HARDENER SikaBiresin® CH72 –1	MIXED
Mix ratio by weight			100	18	100/18
Mix ratio by volume at 25 °C			100	20	100/20 (5/1)
Aspect			Liquid	Liquid	Liquid
Color			Clear	Lt. amber	Lt. Amber
Viscosity at 25°C (Cps)			1,275	115	633
Specific gravity at 25 °C	lbs./gal (g/cc)	ASTM D792	9.5 (1.14)	8.4 (1.01)	9.31 (1.12)
Gel time at 77°F (150 grams) (25°C)	(minutes)				34

MECHANICAL PROPERTIES at 23 °C (**Neat** cured properties)

Hardness	(Shore D)	ASTM D-2240	
*Cure #1			85
**Cure #2			85
Flexural Strength	(psi)	ASTM D-790	
*Cure #1			10,116
**Cure #2			16,420
Flexural Modulus	(psi)	ASTM D-790	
*Cure #1			423,317
**Cure #2			445,545
Tensile Strength	(psi)	ASTM D-638	
*Cure #1			6,365
**Cure #2			8,992
Tensile Modulus	(psi)	ASTM D-638	
*Cure #1			268,187
**Cure #2			271,239
Tensile Elongation	(psi)	ASTM D-638	
*Cure #1			2.7
**Cure #2			4.0
Glass transition temperature	°F (°C) TMA	ASTM E1545	
*Cure #1			123 (51)
**Cure #2			154 (68)
Moisture absorption	(%)		.17
*Cure #1			

* Cure #1 - 7 day/R.T.
** Cure #2 – 24 hr/R.T. + 4hr/212°F (100°C)

MECHANICAL PROPERTIES at 23 °C (**Composite** cured properties)

Flexural Strength	(psi)	ASTM D-790	
*Cure #1			35,175
**Cure #2			40,501
Flexural Modulus	(psi)	ASTM D-790	
*Cure #1			1.93M
**Cure #2			2.04M
Tensile Strength	(psi)	ASTM D-638	
*Cure #1			41,189
**Cure #2			36,387
Tensile Modulus	(psi)	ASTM D-638	
*Cure #1			975,092
**Cure #2			905,866
Tensile Elongation	(psi)	ASTM D-638	
*Cure #1			6.6
**Cure #2			5.9

Composite laminate – 8 layer, 10 oz. glass, plain weave, 0-90° rotation, vacuum bagged. Resin wt. content 37% for fast 40% for medium and 34% for slow system.
* Cure #1 - 7 day/R.T.
** Cure #2 – 24 hr/R.T. + 4hr/212°F (100°C)

PHYSICAL PROPERTIES – CR72/**CH72-2 (Medium)**

Composition			RESIN SikaBiresin® CR72	HARDENER SikaBiresin® CH72 –2	MIXED
Mix ratio by weight			100	18	100/18
Mix ratio by volume at 25 °C			100	20	100/20 (5/1)
Aspect			Liquid	Liquid	Liquid
Color			Clear	Lt. amber	Lt. Amber
Viscosity at 25°C (Cps)			1,275	41	390
Specific gravity at 25 °C	lbs./gal (g/cc)	ASTM D792	9.5 (1.14)	8.1 (.97)	9.26 (1.11)
Gel time at 77°F (150 grams) (25°C)	(minutes)				43

MECHANICAL PROPERTIES at 23 °C (**Neat** cured properties)

Hardness	(Shore D)	ASTM D-2240	
*Cure #1			84
**Cure #2			85
Flexural Strength	(psi)	ASTM D-790	
*Cure #1			10,481
**Cure #2			14,917
Flexural Modulus	(psi)	ASTM D-790	
*Cure #1			381,130
**Cure #2			408,682
Tensile Strength	(psi)	ASTM D-638	
*Cure #1			7,370
**Cure #2			10,239
Tensile Modulus	(psi)	ASTM D-638	
*Cure #1			272,702
**Cure #2			259,791
Tensile Elongation	(psi)	ASTM D-638	
*Cure #1			3.2
**Cure #2			6.3
Glass transition temperature	°F (°C) TMA	ASTM E1545	
*Cure #1			140 (60)
**Cure #2			163 (73)
Moisture Absorption *Cure #1	(%)		.21

* Cure #1 - 7 day/R.T.
** Cure #2 – 24 hr/R.T. + 4hr/212°F (100°C)

MECHANICAL PROPERTIES at 23 °C (**Composite** cured properties)

Flexural Strength	(psi)	ASTM D-790	
*Cure #1			35,657
**Cure #2			37,404
Flexural Modulus	(psi)	ASTM D-790	
*Cure #1			1.66M
**Cure #2			1.61M
Tensile Strength	(psi)	ASTM D-638	
*Cure #1			36,221
**Cure #2			32,325
Tensile Modulus	(psi)	ASTM D-638	
*Cure #1			815,364
**Cure #2			833,849
Tensile Elongation	(psi)	ASTM D-638	
*Cure #1			7.0
**Cure #2			6.0

Composite laminate – 8 layer, 10 oz. glass, plain weave, 0-90° rotation, vacuum bagged. Resin wt. content 37% for fast 40% for medium and 34% for slow system.
* Cure #1 - 7 day/R.T.
** Cure #2 – 24 hr/R.T. + 4hr/212°F (100°C)

PHYSICAL PROPERTIES – **CR72/CH72-3 (Slow)**

Composition			RESIN SikaBiresin® CR72	HARDENER SikaBiresin® CH72 –3	MIXED
Mix ratio by weight			100	18	100/18
Mix ratio by volume at 25 °C			100	20	100/20 5/1
Aspect			Liquid	Liquid	Liquid
Color			Clear	Lt. amber	Lt. Amber
Viscosity at 25°C (Cps)			1,275	47	410
Specific gravity at 25 °C	lbs./gal (g/cc)	ASTM D792	9.5 (1.14)	8.1 (0.97)	9.26 (1.11)
Gel time at 77°F (150 grams) (25°C)	(minutes)				52

MECHANICAL PROPERTIES at 23 °C (**Neat** cured properties)

Hardness	(Shore D)	ASTM D-2240	
*Cure #1			84
**Cure #2			86
Flexural Strength	(psi)	ASTM D-790	
*Cure #1			10,824
**Cure #2			13,899
Flexural Modulus	(psi)	ASTM D-790	
*Cure #1			396,965
Flexural Modulus *Cure #2			409,770
Tensile Strength	(psi)	ASTM D-638	
*Cure #1			6,576
**Cure #2			10,695
Tensile Modulus	(psi)	ASTM D-638	
*Cure #1			263,910
**Cure #2			271,214
Tensile Elongation	(psi)	ASTM D-638	
*Cure #1			3.0
**Cure #2			6.5
Glass transition temperature	°F (°C) TMA	ASTM E1545	
*Cure #1			137 (58)
**Cure #2			159 (71)
Moisture Absorption *Cure #1	(%)		.25

* Cure #1 - 7 day/R.T.
** Cure #2 – 24 hr/R.T. + 4hr/212°F (100°C)

MECHANICAL PROPERTIES at 23 °C (**Composite** cured properties)

Flexural Strength	(psi)	ASTM D-790	
*Cure #1			32,632
**Cure #2			36,632
Flexural Modulus	(psi)	ASTM D-790	
*Cure #1			1.61M
**Cure #2			1.77M
Tensile Strength	(psi)	ASTM D-638	
*Cure #1			33,391
**Cure #2			31,126
Tensile Modulus	(psi)	ASTM D-638	
*Cure #1			674,313
**Cure #2			851,211
Tensile Elongation	(psi)	ASTM D-638	
*Cure #1			6.7
**Cure #2			5.4

Composite laminate – 8 layer, 10 oz. glass, plain weave, 0-90° rotation, vacuum bagged. Resin wt. content 37% for fast 40% for medium and 34% for slow system.
* Cure #1 - 7 day/R.T.
** Cure #2 – 24 hr/R.T. + 4hr/212°F (100°C)

PROCESSING

After mixing according to the indicated ratio, carry out impregnation of the reinforcements.
To ensure an optimal use and a good impregnation, please use packaging stored at a temperature above 15 ° C.

CURE CONDITIONS

In order to avoid any risk of distortion or tooling shrinkage a precise curing cycle must be observed. Demolding takes place only after a 24 hour R.T. minimum or 16 hour pre-curing at 40°C-60°C. material can be used with R.T. cure only or with some (Post-cure) carried out.

HANDLING PRECAUTIONS

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

- Ensure good ventilation.
- Wear gloves, glasses and protective clothes.

For further information, please consult the Safety Data Sheets.

STORAGE CONDITIONS

- Product shelf life of resin and hardener is 2 years when stored in original unopened containers between 65 – 77°F (15 – 25°C). Any opened can must be tightly closed. Any opened can must be tightly closed.

PACKAGING

Packaging information on request, please contact your local sales representative or find your local contact on www.sikaadvancedresins.us

LEGAL NOTICE

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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