500 Series Epoxy Resin System

Description

500 Series Epoxy Laminating System is a low viscosity resin with excellent physical chemical properties. Designed for wet lay-up and vacuum bagging processes. The low viscosity allows laminates to be produce by contact pressure, vacuum or pressure bag techniques. Unlike most other epoxies on the market the 500 Series provides one of the lowest diluent contents on the market. This is particularly important for those using in open moulding and hand layup applications, where exposure to vapour can be difficult.

Uses

Hand lay-up and open moulding, vacuum bagging and pressure applications. Ideal to use for impregnation of carbon and aramid fibre. Use in many areas from marine, transport, water tanks, timber and ply work.

Advantages

Optimised for open moulding
Excellent vacuum bagging characteristics
Three hardener options available
Improved health and safety

Hardener Options

510 Fast Hardener (5:1)
This hardener provides a fast 10-minute pot life with rapid set characteristics. Ideal where clarity is not essential but fast cure times are needed.
520 Slow Hardener (5:1)
This hardener provides a 20-minute pot life. This hardener is the default choice in many applications, it provides a standard pot life with good clarity and excellent wet out properties.
530 Super Slow Hardener (3:1)
This hardener provides a long 30-minute pot life. It has a unique characteristic of being extremely high clarity, making it an ideal resin to be used for carbon fibre impregnation, surfboard manufacture and a wood coating system. The 530 hardener also provides improved non-yellow properties in UV light.

Typical Liquid Properties

MATERIAL	500A Resin	510B Hardener	520B Hardener	530 Hardener
MIX RATIO BY WEIGHT	100	17	18	28
MIX RATIO BY VOLUME	100	20	20	33.3
VISCOSITY CPS	600	170	80	80
MIXED VISCOSITY CPS		450	360	340
SHELF LIFE MONTHS	36	36	36	36
COLOUR	CLEAR	L/YELLOW	CLEAR	CLEAR
MIXED COLOUR		L/YELLOW	CLEAR	CLEAR

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MIXED DENSITY		0.96	1.02	1.09
SPECIFIC GRAVITY CURED		1.18	1.18	1.17
POT LIFE @ 25 DEG C 100G/M MASS		10	20	30
BARCOL HARDNESS 1 DAY		80	80	79
BARCOL HARDNESS 1 WEEK		85	85	83
COMPRESSION YEILD @ 1 DAY		10,313	9,754	8,932
COMPRESSION YEILD @ 1 WEEK		11,618	11,599	10,950
TENSILE MODULOUS PSI		15,000	12,000	14,000
HEAT DEFLECTION TEMP DEG C		125	130	128
MOISTURE ABSORBTION %	2.1	2	1	1
GLASS TRANSITION		38	36	32
FLEXURAL MODULOUS		3.4	3.3	3

Instructions for Use

Please always consult the safety data sheet before use. 500 Series optimum working temperature is between 18-28^{0}C. At lower temperatures, the product thickens and may become difficult to use. At higher temperatures working time will be reduced. The maximum relative humidity to use at is 70%. Mixing ratio for each of the hardeners is as follows;

Weight

500A Resin	**510 Hardener**
100 grams	17 grams
500A Resin	**520 Hardener**
100 grams	17 grams
500A Resin	**530 Hardener**
100 grams	28 grams

Volume

500A Resin	**510 Hardener**
100 ml	20 ml
500A Resin	**520 Hardener**
100 ml	20 ml
500A Resin	**530 Hardener**
100 ml	33.3 ml

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Ambient Temperature Cure The 500 Series epoxy system has been developed to return good mechanical properties after cure in ambient temperatures. The minimum recommended temperature is 18^0C. An initial cure of at least 36 hours with 530 Hardener, or 12 hours with 520 Hardener is recommended before demoulding. Laminates created using the 500 Series system should be allowed seven days before they are considered adequately cured. It is recommended that these mouldings be kept in a warm dry environment during this period

Post Cure

Post curing the laminate will greatly increase the mechanical properties of the laminate. The 500 Series system will achieve excellent properties after four hours at 80^0C, or 14 hours at 50^0C. Post curing the 500 Series system improves the finished properties considerably.

The post curing process does not need to be carried out immediately. It is possible to assemble a number of components and post cure the finished assembly, such as building a boat. Any large structure should be well supported when being post cured. During the post curing process, the laminate will soften. It won't reach full cure until having cooled down after initial heat has been applied. It is necessary to keep the laminate supported until it has cooled

Storage and Shelf Life

Store in a cool, dry area, away from sources of increased heat, sunlight or frost. Store in original container sealed. Shelf life if stored correctly up to 3 years. Please note clarity of the resin will differ if not stored correctly away from sunlight.

Notes

Use a measuring device or syringe to weigh out catalyst, correct levels are essential to resin cure. When mixing resin and hardener ensure that they are mixed thoroughly paying special attention to the side and bottom of the container. The resin should than be transferred to a shallow tray to reduce exothermic heat build-up.
All information provided in this bulletin is to be used as a guide only, individual tests should be conducted to determine if this product is suitable for your application.

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