

AMPRO™ 115

CLEAR EPOXY LAMINATING RESIN

AMPRO 115 is a simple to use, low viscosity, ultra-clear epoxy laminating system with the benefit of a high levels of UV resistance. It has been formulated for the manufacture of laminates such as those used in marine, automotive and leisure industries which are to remain unpainted, and where a very clear finish is required. AMPRO 115 is an improved version of the original SP 115 resin system.

AMPRO 115 has twice the resistance to UV yellowing compared to standard Gurit AMPRO products. AMPRO 115 is a suitable to be used for lamination of glass, carbon, aramid and flax fibers. It can also be applied as a top gloss coat to FRP laminates and wooden surfaces. AMPRO 115 can also be used for small volume casting and decorative work.

AMPRO 115 is compatible with all types of foams, polystyrenes, polyurethanes, Gurit PVC, Gurit Kerdyn™ PET and Corecell™ products.



- Clear epoxy resin
- Excellent mixed resin clarity
- High resistance to UV yellowing
- Ideal for cosmetic carbon and surfboard lamination
- Average of 45 minutes working time
- Mix ratio by weight 100:32
- Mix ratio by volume 100:38

INSTRUCTIONS FOR USE

APPLICATION

AMPRO 115 is suitable for lamination of fibers and coating of substrates. The product is optimized for use at temperatures between 18 and 25°C. At lower temperatures the product thickens and may become unworkable. At higher temperatures working times will be significantly reduced. Maximum relative humidity for use is 70%.

When applying as a coating, small volumes of mixed resin (50-75g) can be left to react and thicken, then applied to the surface of the substrate. This method increases the thickness of resin film that can be applied in one layer.

Multiple coats of AMPRO 115 can be repeatedly applied "wet on tacky" (approximately 45 mins at 20°C) the interval between coats will be longer at lower temperatures. If left for 6 hours or more @ 20°C the coating should be left to cure overnight and then sanded before continuing to apply and resin.

Once the final coating has been applied and cured it could have formed a very thin bi-product "Bloom" coating. It may only become apparent on contact with moisture, appearing as a cloudy white film. This layer can be easily removed by polishing off using a fine cutting compound on a cloth leaving the part with a smooth shiny finish.

A polyurethane or similar topcoat can be applied to enhance the UV protection to further reduce yellowing. Prior to the application of a topcoat the surface of the AMPRO 115 should be sanded and cleaned, then follow selected topcoat manufacturer's instructions.

Resin castings of less than 5mm can be made at 15-20°C ambient temperatures, the mixed resin requires degassing prior to pouring.

It is not recommended to dilute the resin, hardener or mix system with solvents.

MIXING AND HANDLING

Accurate measurement and thorough mixing are essential when using this system, and any deviation from the prescribed mix ratios will seriously degrade the physical properties of the cured system. The resin and hardener must be stirred well for two minutes or more, with particular attention being paid to the sides and bottom of the container. As soon as the material is mixed the reaction begins. This reaction produces heat (exothermic), which will in turn accelerate the reaction. If this mixed material is left in a confined mixing vessel the heat cannot disperse and the reaction will become uncontrollable. It is therefore advised that the material is used immediately or transferred to a shallow wide-bottomed container like a paint tray which will extend the working time.

AMPRO 115 can be mixed with standard Gurit fillers to make filling / fairing or adhesive compounds as required.

CURE SCHEDULE

Cure at ambient temperature between 18°C - 30°C / 59°F - 86°F. AMPRO 115 will cure at ambient temperatures providing adequate properties after 7 to 14 days. An elevated temperature post cure (up to 50°C / 122°F) is recommended to fully stabilize the laminate for maximum properties. A post cure gives increased mechanical properties, particularly a higher heat deflection temperature, increased surface toughness and increased color stability.

An elevated temperature post cure can be applied after an initial 24-hour cure at room temperature. Support the molded component adequately during the post-cure as the laminate will initially soften slightly as the temperature increases. The optimum cure at elevated temperature depends on temperature and time, e.g. 16 hours at 50°C / 122°F, or longer at lower temperatures.

TRANSPORT & STORAGE

The resin and hardener should be kept in securely closed containers during transport and storage. Any accidental spillage should be soaked up with sand, sawdust, cotton waste or any other absorbent material. The area should then be washed clean (see appropriate Safety Data Sheet). Adequate long term storage conditions will result in a shelf life of 2 years from the date of manufacture for both the resin and hardeners, see product container labels for expiry date. Storage should be in a warm dry place out of direct sunlight and protected from frost. The storage temperature should be kept constant between 10°C and 25°C, cyclic fluctuations in temperature can cause crystallization. Containers should be firmly closed. Hardener, in particular, will suffer serious degradation if left exposed to air. Hardeners may darken over time, however the physical properties are not affected. Be aware of a possible mixed system color change if very old and new hardeners are used on the same project.

AMPRO 115 PROPERTIES

This product summary is intended for use in conjunction with further advice provided under the Instructions for Use section. All data has been generated from production material and does not constitute a product specification.

PROPERTY	UNITS	AMPRO 115 RESIN	AMPRO 115 HARDENER	MIXED SYSTEM
Color	-	Clear	Clear	Clear
Mix ratio by volume	Parts by volume	100	38	-
Mix ratio by weight	Parts by weight	100	32	-
Density at 21°C (ISO 1183-1B)	g/cm ³	1.15	0.96	1.10

COMPONENT & MIXED SYSTEM PROPERTIES

PROPERTY	UNITS	TEMPERATURE 25°C	TEST METHOD
AMPRO 115 Resin viscosity	cP	600-700	CAP2000LT
AMPRO 115 Hardener viscosity	cP	100-200	CAP2000LT
Initial mixed system viscosity	cP	550	CAP2000LT

WORKING TIME PROPERTIES

PROPERTY	UNITS	TEMPERATURE 20°C	TEST METHOD
Thin-film gel-time (0.5mm)	hrs:min	2:40	CAP2000LT
Pot-life (150 g, mixed in water)	hrs:min	1:15	Tecam Gel Time

THERMAL PROPERTIES

PROPERTY	UNITS	1 DAY AT 20°C	28 DAYS AT 20°C	16 HOURS @ 50°C	5 HOURS @ 70°C	TEST METHOD
Glass transition temperature	°C	47	53	66	75	(DMA)

CURED RESIN PROPERTIES

PROPERTY	SYMBOL	UNITS	16 HOURS @ 50°C*	TEST METHOD
Glass transition temperature	T _{g1}	°C	66	(DMA)
Ultimate glass transition temp.	UT _{g2}	°C	100	(DSC)
Tensile strength	σ _T	MPa	72	ISO 527-2
Tensile modulus	E _T	GPa	3.4	ISO 527-2
Tensile elongation	ε _T	%	7.6	ISO 527-2
Flexural strength	σ _F	MPa	122	ISO 178
Flexural modulus	E _F	GPa	3.3	ISO 178
Flexural elongation	ε _F	%	10.2	ISO 178
7 day water uptake @ 50°C (coupon size 60x60x1mm)	-	%	1.4	ISO 62

* initial cure of 24 hours at 20°C

HEALTH AND SAFETY

The following points must be considered:

1. Skin contact must be avoided by wearing protective gloves. Gurit recommends the use of disposable nitrile gloves for most applications. The use of barrier creams is not recommended, but to preserve skin condition a moisturizing cream should be used after washing.
2. Protective clothing should be worn when mixing, laminating or sanding. Contaminated work clothes should be thoroughly cleaned before re-use.
3. Eye protection should be worn if there is a risk of resin, hardener, solvent or dust entering the eyes. If this occurs flush the eye with water for 15 minutes, holding the eyelid open, and seek medical attention.
4. Ensure adequate ventilation in work areas. Respiratory protection should be worn if there is insufficient ventilation. Solvent vapors should not be inhaled as they can cause dizziness, headaches, loss of consciousness and can have long term health effects.
5. If the skin becomes contaminated, then the area must be immediately cleansed. The use of resin-removing cleansers is recommended. To finish, wash with soap and warm water. The use of solvents on the skin to remove resins etc must be avoided.

Washing should be part of routine practice:

- before eating or drinking
- before smoking & vaping
- before using the lavatory
- after finishing work

6. The inhalation of sanding dust should be avoided and if it settles on the skin then it should be washed off. After more extensive sanding operations a shower/bath and hair wash is advised.

Gurit produces a separate full Safety Data Sheet for all hazardous products. Please ensure that you have the correct SDS to hand for the materials you are using before commencing work.

NOTICE

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Gurit is continuously reviewing and updating literature. Please ensure that you have the current version by contacting your sales contact and quoting the revision number in the bottom left-hand corner of this page.

CONTACT INFORMATION

Please see local contact information at www.gurit.com

24-HOUR CHEMICAL EMERGENCY NUMBER

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