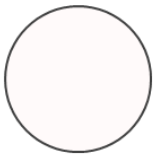
AMPRO™ Handipack

MULTIPURPOSE EPOXY SYSTEM

- Ideal for repairs and other small tasks
- Handipack re-engineered, with improved health & safety
- For bonding, laminating, clear-coating & filling
- Idea for small repairs & projects
- 3 : 1 mix ratio by volume (3 pumps of resin to 1 pump of hardener)
- No surface residue after cure, even at +5°C
- Improved health & safety



Cured Resin Colour

INTRODUCTION

AMPRO™ Handipack is a simple to use, all-purpose epoxy, designed for quick repair work and small-scale construction jobs.

With its high clarity, fast, low temperature curing AMPRO™ CLR Fast hardener and easy 3:1 mix ratio by volume, AMPRO™ Handipack provides a quick and convenient way of using one epoxy system for a very wide range of tasks.

- **Laminating -** The medium to low viscosity of the material enables it to be used for small laminating tasks, using lightweight glass fabrics.
- **Coating & Sheathing -** The high clarity makes it a good sheathing system that can also be used as a coating to form a tough, clear film, with good moisture resistance. If the coating is to remain unpainted, the cured material should be overcoated with a UV-resistant varnish, since an unprotected epoxy coating will gradually yellow in sunlight.
- **Bonding & Filling -** By using the Gurit range of filler powders, a Handipack resin and hardener mix can also be turned into a very effective adhesive or filling compound.

The AMPRO™ Handipack is only available in one small pack size that contains:

- 290g AMPRO™ Resin
- 85g AMPRO™ CLR Fast Hardener
- 5ml Resin Pump
- 5ml Hardener Pump

PRODUCT INFORMATION

AVAILABILITY

The product is only available as a 375g pack, please contact Gurit customer support or retailer representative for more information.

TRANSPORT & STORAGE

COMPONENT	UNITS	10 – 25°C
AMPRO™ Resin	months	24
AMPRO™ CLR Fast Hardener	months	24

The resin and hardeners 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 for both the resin and hardeners. 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 as cyclic fluctuations in temperature can cause crystallization. Containers should be firmly closed between uses as the hardener in particular will suffer serious degradation if left exposed to air. The hardener colour may darken over time, which will not affect its properties, however be aware of a possible change in mixed system colour if very old and new hardeners are used on the same project.

INSTRUCTIONS FOR USE

The product is optimised for use at temperatures between 15 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%.

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 and may result in the product not curing correctly.

METERING RESIN AND HARDENER IN THE CORRECT RATIO

Only one hardener is available and this has a faster reaction speed than other multi-purpose epoxies. Use the hardener provided in the ratio:

Resin		Hardener	
3	:	1	(by volume)

Measure both the resin and hardener as accurately as possible since varying the amount of hardener will not change the cure speed but will greatly reduce the cured strength and water resistance properties of the material.

Use Gurit graduated cups, syringes or the Handipack pump dispensers provided. Handipack contains solvent-free epoxy so expect limited pot life.

HANDIPUMPS

These are plastic plunger-type pumps which are designed to screw directly onto the resin and hardener containers. Apart from the cap colour (blue - resin; red - hardener) the pumps are identical. Both pumps will dispense the same volume (5 ml approx.) with each full stroke. Therefore correct mix ratio of resin to hardener is achieved by pressing the resin pump three times and the hardener pump once for each batch to be mixed. This is a convenient way of providing the essential accuracy required. It is therefore important to check that the pumps deliver the correct volumes prior to each use.

HOW TO FIT THE PUMPS

Unscrew the caps from both containers and remove the seals. Cut the dip tubes to the length specified below:

Resin 94mm
Hardener 55mm

Screw each pump into place. Now depress the plungers several times to expel all of the air and a small quantity of resin and hardener into a spare container. **Prime the pumps by depressing the plunger several times until spluttering stops and the material is dispensed as a steady stream**. In cold conditions the pumps will be more difficult to prime correctly and may dispense inaccurate volumes. It is therefore advisable to store the resin and hardener at 15° - 25°C for a while before actual use.

HOW TO USE THE PUMPS

- Always ensure that the pumps are primed before use.
- Place a mixing cup under the hardener spout & depress the pump for one complete stroke using a slow deliberate movement, delivering 5 ml of hardener.
- Then move the container under the resin spout and depress the resin pump three times with a slow, deliberate action (each pump delivers 5 ml) and allow the pump to return fully before depressing again to deliver the resin in the correct 3:1 volume ratio.
- For larger volumes, repeat (2) and (3), but do not dispense more than can be used within 10-20 minutes.
- Mix thoroughly for 2 minutes as described above.

PUMP MAINTENANCE

The pumps are designed to provide continuous service for up to 3 months without maintenance. However, care should be taken to ensure that the exposed parts of the plungers and spouts are kept clean by occasionally wiping with acetone, a suitable cleaning solvent or flush with clean water. Cover the ends of the spouts, when pumps are not in use, to help maintain the pumps in a primed condition and stop them dripping. This can be done by inserting a piece of rolled up masking tape or a suitably sized self-tapping screw.

To clean the pumps first allow each to drain completely. Warm air from a hairdryer or careful use of a hot air gun will help this process. Then use hot soapy water, followed by a suitable Cleaning Solvent and allow to dry completely. The pumps may then be used. While the cleaning process should remove all traces of the resin or hardener, it is recommended that a pump previously used for resin, is used for resin again. Poor maintenance can affect the accuracy of the pumps. We therefore recommend that if accuracy is in doubt the pump dispensed volumes should be checked using a calibrated measuring cylinder or cup. Gurit cannot accept liability for poor results following inaccurate pump performance.

MIXING AND HANDLING

Once the correct amounts resin and hardener has been dispensed, the products must be mixed 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.

Mix no more than can be used within 10-20 minutes of the start of mixing - this will avoid excessive heat build up, early gelling and resin wastage.

INSTRUCTIONS FOR USE CONTINUED

COATING

2 coats of AMPRO™ Handipack will achieve a stable substrate and has a number of benefits, including:

- Subsequent coats of AMPRO™ Handipack can be applied after just 5 hours or up to 5 days later at 20°C / 50% RH without sanding
- AMPRO™ Handipack is solvent-free and will be fully hardened overnight ready for over-coating or top-coating

If exposed to sunlight the product should be painted or coated with a varnish which includes UV filter or blockers

FILLING AND FAIRING MIXES

All filler additions are approximate and can be adjusted by the user to achieve the desired consistency.

DESCRIPTION	FILLER TYPE	EASE OF SANDING	WATER RESISTANCE	FILLER QUANTITY*		AMPRO™ SILICA ADDITION*		APPROX. DENSITY	APPROX. VOLUME
				%	FOR 1KG	%	FOR 1KG		
Brown, Low Density	Microballons	Easy	Moderate	25 - 30	250 - 300 g	2 - 3	20 - 30	0.6 g/cm^3	2.2 Litres
White, Low Density	Glass Bubbles	Moderate	High	35 - 40	350 - 400 g	3 - 5	30 - 50	0.5 g/cm^3	3.0 Litres

ADHESIVE MIXES

All filler additions are approximate and can be adjusted by the user to achieve the desired consistency.

DESCRIPTION	FILLER TYPE	FILLER QUANTITY*		AMPRO™ SILICA ADDITION*		APPROX. DENSITY	APPROX. VOLUME
		%	FOR 1KG	%	FOR 1KG		
Brown, Low Density	Microballoons**	15 - 20	150 - 200 g	4 - 5	40 - 50 g	0.7 g/cm^3	1.8 Litres
White, Low Density	Glass Bubbles**	15 - 20	150 - 200 g	5 - 6	50 - 60 g	0.6 g/cm^3	2.0 Litres
Opaque, High Strength	Microfibres	7 - 10	70 - 100 g	3 - 4	30 - 40 g	0.9 g/cm^3	1.0 Litres

COVERAGE

THICKNESS (PER COAT)	50 - 150 MICRONS	COMMENT
Coating Coverage (at 250 microns)	Approximately 3 m^2/kg	Dependant on temperature, surface inclination, surface porosity and evenness
Adhesive Coverage	Approximately 1.5 - 2.0 m^2/kg	Dependant on temperature, surface inclination, surface porosity and evenness

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 moisturising 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. When using cleaning solvent with the Handipacks, solvent vapours 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, drinking or smoking
   - ¬ before using the lavatory and 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.

APPLICABLE RISK & SAFETY PHRASES

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. The SDS can be obtained from Gurit customer services or your retailer.

**calculated by weight relative to the mixed system of resin and hardener, using AMPRO™ Silica – other products will give different results*
***Microfibres are always preferred for load-carrying adhesive joints*

AMPRO™ HANDIPACK

MIXING AND HANDLING

PROPERTY	UNITS	AMPRO™ RESIN	CLR FAST HARDENER	MIXED SYSTEM
Colour	-	Clear	Clear	Clear
Mix ratio by weight	Parts by weight	100	29	-
Mix ratio by volume	Parts by volume	3	1	-
Density at 21 °C (ISO 1183-1B)	g/cm^3	1.16	1.04	1.13

COMPONENT & MIXED SYSTEM PROPERTIES*

PROPERTY	UNITS	15˚C	25˚C	TEST METHOD
AMPRO™ Resin Viscosity	cP	1708	529	-
AMPRO™ CLR Fast Hardener Viscosity	cP	1680	620	-
Initial Mixed System Viscosity	cP	-	971	-

WORKING TIME PROPERTIES*

PROPERTY	UNITS	20˚C	TEST METHOD
Thin-Film Gel-time	hrs:min	01:33	-
Pot-life (150 g, mixed in water)	hrs:min	00:28	Tecam Gel Time
Tack-off Time	hrs:min	02:50	Internal Gurit Method
Earliest Sanding Time	hrs:min	12:00	Internal Gurit Method

AMBIENT CURE THERMAL PERFORMANCE PROGRESSION at 21°C

PROPERTY PROGRESSION AT 21°C	SYMBOL	UNITS	7 DAYS	14 DAYS	21 DAYS	28 DAYS	TEST STANDARD
Glass Transition Temperature	Tg_1	°C	43.9	44.8	47.0	46.6	ISO 6721 (DMA)

CURED RESIN PROPERTIES

PROPERTIES	SYMBOL	UNITS	28 DAYS AT 21°C	16 HRS AT 50°C**	TEST STANDARD
Glass Transition Temperature	Tg_1	°C	46.6	55.5	ISO 6721 (DMA)
Ultimate Glass Transition Temp.	UTg_1	°C	55.5		ISO 6721 (DMA)
Tensile Strength	σ_T	MPa	50.6	56.2	ISO 527-2
Tensile Modulus	E_T	GPa	3.05	3.08	ISO 527-2
Tensile Elongation	ε_T	%	4.85	10.8	ISO 527-2
Flexural Strength	σ_F	MPa	85.3	90.8	ISO 178
Flexural Modulus	E_F	GPa	2.83	2.86	ISO 178
Flexural Elongation	ε_F	%	12.0	11.9	ISO 178
28 Day Water Uptake (coupon size 60x60x1mm)	-	mg	58.7 (0.83%)	-	ISO 62
ILSS *(8 x RE301H8, 50% resin content)*	X_{ILSS}	MPa	35.7	-	ISO 14130

ADHESIVE PERFORMANCE (AFTER 28 DAYS AT 21°C CURE)

PROPERTIES	SYMBOL	UNITS	PLYWOOD	TEAK	STEEL	TEST STANDARD
Lapshear Strength	τ	MPa	2.3 (failed in wood)	TBC	16.4	BS 5350 Part C5
Lapshear Strength Wet Retention (saturated for 28 days at 23°C in water)	τ_{wet}	MPa	-	-	17.4	BS 5350 Part C5

**working time properties are highly subjective to ambient conditions and should be used as an approximate guideline for all AMPRO™ systems*
***initial cure of 24 hours at 21°C*

NOTICE

All advice, instruction or recommendation is given in good faith but the selling Gurit entity (the Company) only warrants that advice in writing is given with reasonable skill and care. No further duty or responsibility is accepted by the Company. All advice is given subject to the terms and conditions of sale (the Conditions) which are available on request from the Company or may be viewed at Gurit's Website: www.gurit.com/terms-and-conditions.aspx

The Company strongly recommends that Customers make test panels in the final process conditions and conduct appropriate testing of any goods or materials supplied by the Company prior to final use to ensure that they are suitable for the Customer's planned application. Such testing should include testing under conditions as close as possible to those to which the final component may be subjected. The Company specifically excludes any warranty of fitness for purpose of the goods other than as set out in writing by the Company. Due to the varied nature of end-use applications, the Company does, in particular, not warrant that the test panels in the final process conditions and/or the final component pass any fire standards.

The Company reserves the right to change specifications and prices without notice and Customers should satisfy themselves that information relied on by the Customer is that which is currently published by the Company on its website. Any queries may be addressed to the Technical Services Department.

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.

TECHNICAL CONTACT INFORMATION

For all other enquiries such as technical queries:

Telephone	+ 44 1983 828000 (08:30 – 17:00 GMT)
Email	technical.support@gurit.com

24-HOUR CHEMICAL EMERGENCY NUMBER

For advice on chemical emergencies, spillages, fires or exposures:

Europe	+44 1273 289451
Americas	+1 646 844 7309
APAC	+65 3158 1412

E customer.support@gurit.com

W www.gurit.com