

# PRO-EPOX 101

EPOXY REPAIR RESIN

TECHNICAL DATA SHEET



**PRO-EPOX 101** is an epoxy resin with improved substrate penetration and wetting of fibers, for interior and exterior use, above and below the waterline. Use for:

- **Lamination**, GRP and FRP hand lay-up repairs.
- **Protective base / sealer layer** on synthetic, wooden and metal hulls, including as tie coat for lead keels.

## Application method

Apply using brush/roller or batten (for wet prepping).

## Features

- 3:2 by volume,
- improved penetration of substrate and fibers,
- non-blushing,
- low odor,
- curing will continue even if ambient conditions become unfavorable.

## Limitations

- When using as base layer, for temperatures (during application) below 20 °C, the primer **PRO-PRIME 101** (100% solids) is an easier to work with alternative.

## Product data

PRO-EPOX 101: Properties	
Mix ratio, by volume	3:2
Mix ratio, by weight	100:59
Color <i>Gardner index, ASTM D1544</i>	comp. A: 1, transparent comp. B: 4, light yellowness mixture: 2, very slight yellowness
Result	transparent gloss
Volume solids, %	100
V.O.C., g/lit	0
Specific weight <i>of mixture, approx., ISO 2811, kg/lit</i>	1.11

Shelf life (in controlled environment), years	2
Packaging, comp. A+B, lt	2, 30

## Curing speed

PRO-EPOX 101: Curing speed			
	10 °C	20 °C	30 °C
Pot life *, mins	150	75	45
Thin film gel time, hrs	3	1.5	1
Touch dry time, hrs	5.5	2.5	2
Tack free, hrs	12	4	3
Hard dry / sandable, hrs	36	12	8

[Determined in controlled laboratory conditions. To be used as a guide only.]

\* Note that pot life is highly dependent on volume of mixture and container size. Employ the usual epoxy resin techniques (e.g. temperature controlled large shallow container) in order to achieve a reasonable working life.

PRO-EPOX 101 will continue to cure for 2-7 days. This does not prevent recoating/overcoating.

## Recoat and overcoat times

**'Gel-to-tack-free window'**: As a rule of thumb, recoating and overcoating *without fairing* must be done within the 'gel-to-tack-free window'. After this time, fairing is necessary.

### • Lamination

To make a hand lay-up repair level with its surroundings, it will usually have to be faired once it is hard dry. However, if filling is required to make it level, use the PRO-FILL of your choice within the 'gel-to-tack-free window'.

### • Hull sealing

- **Recoat, porous substrates:** In cases where the resin is readily absorbed on application, apply the subsequent layer back-to-back.
- **Recoat, non-porous substrates:** Recoat within the 'gel-to-tack-free window'.
- **Overcoat:** Use the 'gel-to-tack-free window' to overcoat with a PRO-PRIME or PRO-FILL product.

PRO-EPOX 101: 'Gel-to-tack-free window'			
	10 °C	20 °C	30 °C
Recoat/overcoat window, hrs	3-12	1.5-4	1-3

## Consumption

### • Lamination

Consumption by weight:

- Fiberglass : resin 1 : 2.5
- Carbon fiber : resin 1 : 1

### • Hull sealing

The number of layers to be applied will depend on substrate porosity.

#### - Porous substrates, 1-3 layers, 15 m<sup>2</sup>/lt

On substrates like faired fiberglass and wood the first layer will quickly impregnate and only the second one will start forming small areas of continuous coating.

#### - Non-porous substrates, 1 layer, 30 m<sup>2</sup>/lt

On substrates like metal one layer will usually be sufficient.

## Surface preparation

Both preparation and application should be carried out in optimal conditions, namely temperature in the range of 10-35 °C (ambient, substrate and product), ideally 20-35 °C for hull sealing, and normal humidity levels. Following application, if temperature drops, curing will proceed, even close to 0 °C, albeit at lower speeds.

The application surface must be clean, free of dust, salt, water, grease, oil, wax, silicone, rust and other contaminants deposited over time or during the repair process.

For surfaces free of grease and oils, the recommended way of cleaning it is by dry cloth assisted by vacuum dust extractor or compressed air (free of compressor oils). Use a large cloth, apply very lightly and change sides continuously so as to remove dust instead of pressing it on the substrate. Low grade grinding will help with more persistent residues and improve adhesion. Avoid using wet or waxed tissues. As an alternative, use **PRO-CLEAN IPA**, the fast drying, residue free, isopropyl alcohol solvent.

In the case of oily / greasy substrates, use **PRO-CLEAN X**, the xylene based cleaner. Ensure that no residues remain, either from the initial contaminants or from the cleaner.

Do not apply on substrates lacking cohesion. In such cases, unsound parts of the application surface must be removed.

When applying to non-porous metals, especially aluminum, test coverage on a small area. If the result is not satisfactory, fair with grade 400 and clean again before re-testing.

## Application

Using the indicative data given above, prepare quantities which you will comfortably have the time to apply within the pot life window. Mix the two components until a uniform consistency has emerged. Do not dilute.

- **Lamination**

Use the lay-up technique that is most suitable to your repair. We also offer the following two additives for PRO-EPOX 101:

- **AUX-101** silica for increased thixotropy,
- **AUX-201** fiber additive for increased cohesion between FG plies.

- **Hull sealing**

You are advised to apply all coats plus the first coat of primer in one day as primers are easier to work with than clear epoxy resin once the recoat window has passed.

- **Lead keel tie coat**

Apply one coat on clean keel **as soon as possible** after low grade sanding.

Apply thin layers using brush or roller.

*[You are advised to first test the product, surface preparation and ambient conditions on a non-critical part of the application surface before proceeding with the full repair.]*

## Packaging

2 lt, 30 lt (total volume of both components).

## Storage & shelf life

At least 24 months from the date of manufacture in the original sealed container. The ideal storage temperature is 10-25 °C at normal humidity levels.

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## Crystalization

During the colder months, as temperature fluctuates above and below 10 °C, component A, the resin side, will quickly become more viscous and may eventually become hazy or even slushy. This happens because these conditions favor the development of crystalline domains. This phenomenon, called crystallization, is reversible and does not affect the performance of the resin. It is reversed by heat. Small quantities can be heated to just 30 °C and crystals will melt very quickly. However larger containers like 30 lt drums and barrels will require multiple days at elevated heat (50 °C) to revert crystallization. This should be taken into account when planning your work.

## Quality control

PRO-EPOX 101 is produced under ISO 9001/14001/45001.

## Safety

Apply in well-ventilated spaces. Follow personal safety guidelines relating to epoxy products, including the use of proper mask and protective clothing. Avoid physical contact with the uncured substances.

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