
EPIKOTE™ Resin MGS® GRT 30 / GRT 35

**EPIKOTE™ Resin MGS™ T 30 / T35
Hardener MGS® SF 10 / Thinner SF**

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EPIKOTE™ Resin MGS® GRT 30 / GRT 35

Characteristics

Approval	
Application	Gelcoat (fine-layer resin, gelcoat, undercoat, etc.) and topcoat (cover, final coat etc.) for polyester and especially for many epoxide laminating resins T 35: specially developed for the aircraft industry
Special modifications	T 30: transparent and white T 35: white
Processing	Pot life: app. 30-45 min (without thinner) gel time: app. 100-150 min Ability to take: non-tacky after app. 2-4 hours; curing time app. 5-6 hours; completely cured after 2-3 days at room temperature. Optimal processing temperature: 20-25 °C (70-77 °F)
Features	T 30: highly light- and weather resistant surface extremely scratch-resistant grinding of the surface is difficult T 35: product with excellent elongation good working properties
Storage	below +10 °C ca. 6 months (below +50 °F) 10 up to 20 °C 3 - 4 months (50-68 °F)

Gelcoats based on unsaturated polyester resins. Curing mechanism: Cobalt/peroxide. These gelcoats are absolutely free of paraffin and they cure with a satin finish and completely non-tacky surface.

Application

UP Gelcoat T 30 is employed where a particularly resistant surface is desired. Surfaces are highly light- and weather resistant and extremely scratch-resistant for this type of product. The standard colors for UP Gelcoat T 30 are white and transparent. Commercially available coloring pastes (UP coloring pastes) are best suited for tinting. Because of the high scratch resistance the grinding of the surfaces is difficult.

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UP Gelcoat T 35 has been specially developed for the aircraft industry. It features excellent elongation and good working properties. The covering property of T 35 is lower than of T 30. UP Gelcoat T 35 is only available in white.

Suitable as a pregel (fine-layer resin, gelcoat, undercoat, etc.) or topcoat (cover, final coat) for polyester and especially for many epoxide laminating resins. Observe processing instructions! Our gelcoats are only conditionally suitable for applications where the gelcoats are exposed to weathering over long time or to water on a permanent basis. See care directions for polyester gelcoats page 6-7.

Commercially available polyester color pastes (UP color pastes) can be used to tint our pregels.

Scope of delivery

Resin component:	UP Gelcoat T 30, T 35
Hardener (peroxide):	Hardeners SF 10
Thinner:	Thinner SF

Processing

Gelcoats are preferably applied by means of spraying (air spray gun nozzle 2-3 mm, pressure 3-5 bar; airless: nozzle and pressure are to be selected depending on the object). Gelcoats can also be applied by brushing, rolling or blade coating. Due to the thixotropic properties of the gelcoat, wet film layers with a thickness of approx. 0.5 mm can be applied to vertical surfaces.

The optimal processing temperature lies in the range from 20-25 °C (68-77 °F). Lower temperatures increase viscosity (difficult processing), higher temperatures shorten pot life (at 30 °C/86 °F, the pot life will be halved). If several layers must be sprayed, this has to be done "**wet-in-wet**". Drying time between spray operations should be approx. 5-10 min. An "elephant skin" may form if the lower layer starts gelling, which means that the gelling layer will be dissolved by the styrene contained in the new layer. The lower layer will swell up and will be destroyed beyond repair.

Pot life: approx. 30-45 min. (100 g at 20 °C/ 68 °F without thinner)

Gel time: approx. 100-150 min. (depending on temperature and layer thickness)

Non-tacky: after approx. 2-4 hours

Curing time: approx. 5-6 hours; completely cured after 2-3 days at room temperature

Storage

UP Gelcoats T 30 and T 35 are supplied preaccelerated. the gelcoats, hardeners and thinners can be stored at temperatures:

- of below +10 °C (50 °F): for approx. 6 months
- of +10 up to 20 °C (50-68°F): for 3 - 4 months.

These gelcoats are also available stabilized for the tropics (not preaccelerated), in which case storage life at 20-30 °C (68-86 °F) is extended to approx. 6 months. Add cobalt accelerator and stir thoroughly before using tropic stabilized gelcoats.

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Mixtures for standard applications (brushing, spraying)

Mixing ratio

	UP-Gelcoat T 30 / T35 : Hardener SF 10 : Thinner SF
Parts by weight	100 : 10 : up to 10 Always use as little thinner as possible!

Due to the thixotropic properties of the gelcoat, wet film layers with a thickness of approx. **0.5 mm** can be applied. If necessary, the application must be done in several operations. The layer of one operation may not be thicker than 0.1 mm. Drying time before application of the next layer should be approx. 5-10 min because the additional solvents must disappear from the wet layer before gelling starts.

The mixing ratio stated must be observed carefully. Adding more or less hardener will not result in a faster or slower cure, but in incomplete curing with limited performance, that cannot be corrected in any way.

Resin and hardener must be mixed carefully. Mix until no clouding is visible in the mixing container. Special attention must be paid to the walls and bottom of the mixing container.

Additives

Adding accelerator (cobalt, e.g., COB 1) is generally possible to increase reactivity. Processing time can be extended with the usual retarders (e.g., TC 501, hydroquinone, etc.).

Additives must always be thoroughly mixed into the gelcoat before adding hardener. Important: Adding accelerators, retarders or other thinners may cause discoloration and decrease resistance. Adequate testing is mandatory!

Use commercially available polyester color pastes for **coloring**. Normally, add approx. 5-15 % of pigment paste, depending on the desired tint or covering. (Observe pigment paste manufacturer's instructions.) Thoroughly mix the pigment paste into the gelcoat before adding hardener. Transparent UP Gelcoat T 30 is best suited for coloring, especially if dark colors are desired.

**Never mix accelerators and peroxide hardeners directly!
Explosion hazard!**

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**Application as
a topcoat**

Our Gelcoats T 30 and T 35 are suitable for polyester- and epoxy laminates. Various surfaces can be covered with these gelcoats.

If applied on epoxy resin, the epoxy resin must be well cured. Otherwise there is a danger that free amino groups are present, which may delay or prevent curing. A clean, roughly sanded surface is necessary to achieve good bonding.

To prevent color shades during painting, use sandpaper grain 240 or less. The same gelcoat batch should always be used for finishing to prevent color mismatches.

If the gelcoat is put on completely cured (heat-treated) gelcoat, a different color shade is visible after precuring. This disappears after complete curing of the new layer (2 - 4 days at room temperature, 1-2 h at 50 °C/ 122 °F).

To repair small areas, the following procedure can be used: Add 10 % Thinner SF to the gelcoat, mix thoroughly with 10 % Hardener SF 10. Add an additional 10-30 % of acetone or ethylacetate (solvents must have pure quality). Spray this mixture with a 0.5 - 0.8 mm nozzle.

Important: The additional solvents must disappear from the wet layer before gelling starts. Therefore only thin layers (max 50-60 µm) can be laid up in one operation. Drying time before application of the next layer should be approx. 5-10 min. All layers have to be applied "wet in wet". Adding 10-30 % of solvent will increase the pot life to approx. 45-60 min.

Wet sanding with sandpaper grain 1.000 or preferably 2.000 is required before polishing. Good polishing agents are polishing waxes (p. e. Menzerna, Karlsruhe) applied with buffer wheels (p.e. Kreeb, Kirchheim/Teck).

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If polyester gelcoats are to be combined with epoxy laminating resins, then tests must be made for adhesion and compatibility. Unsuitable combinations can destroy the gelcoat (discolouring, brittling, cracks and bubbles).

Application as a gelcoat

Apply the gelcoat to the prepared mould surface in the usual manner.

The mold temperature must be at least 20 °C / 68 °F.
The gelcoat must be well gelled before epoxy resin is laid on.

This is visible because the surface becomes uniformly matt. The finger should not get colored when drawing it across the layer. If the epoxy resin is applied too soon, it is likely that components of the amine hardener will delay or halt complete curing. Since the gelcoats are paraffin-free, the adhesion to epoxy resin is satisfactory even after several days of curing time. Thus, the epoxy resin laminate can be applied either after gelling or after curing overnight or over the weekend.

Gelcoat surfaces on gliders require frequently maintenance with paint care products or paint polishes, to provide **UV protection**. Unprotected gelcoat surfaces will show already after a few years stronger yellowing or cracking.

Care directions

Water, which can be mixed with normal quantities of commonly used rinsing agents, is suitable for cleaning. Use benzine-based tar removers (from car care sets) to remove insects, finger prints, adhered dust and lubricants. However, these agents should not be worked into the surfaces with cloths, cotton, etc., for an extended period of time because this may cause swelling and subsequent "collapse". Products containing silicone may cause problems during repair. We therefore recommend using silicone-free products.

Strong solvents and thinners should also be avoided because they may cause extreme swelling and subsequent "collapse". In particular, these agents include thinners containing esters and/or ketones, acetone, ethyl acetate and paint thinners of any kind. Chlorinated hydrocarbons must be avoided since they will destroy the UP coating within a short period of time and cause it to peel off (these agents include dichloromethane, trichloroethene, chloroform, carbon tetrachloride, trichloroethane, perchloroethylene, etc.).

Alcohols, such as denatured alcohol or isopropyl alcohol, may be used for cleaning purposes if applied with care, much like benzines and other aliphatic hydrocarbons. However, as stated above, they should be applied without much rubbing or extended exposure.

Do not treat (wash) gliders with solvents to eliminate aerodynamically unfavorable raindrop beads. Such solvents will completely remove all protective layers and expose the surface to the influence of the sun, UV radiation and other environmental factors.

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This will eventually result in the destruction of the polyester gelcoat.

Commercial plastic furniture polishes (e. g., Pronto) which form coats to prevent electrostatic charges due to atmospheric and other types of friction should be restricted to plexiglass surfaces. UP gelcoats and EP laminates charge up considerably less, and the resulting film combines with polishes to form a sticky gunk which can only be removed with solvents.

For larger repairs, the complete surface of the part should be wet sanded. Use exclusively fine-grade sandpaper. Rough-grade sandpaper causes deep grooves which can cause strain cracks. Wet-sand with water-sandpaper grain 1.000 or preferably 2.000 before polishing. When polishing with buffer wheels and polishing wax, avoid local overheating since excessive heat will cause the polyester gelcoat to detach from the epoxy laminate.