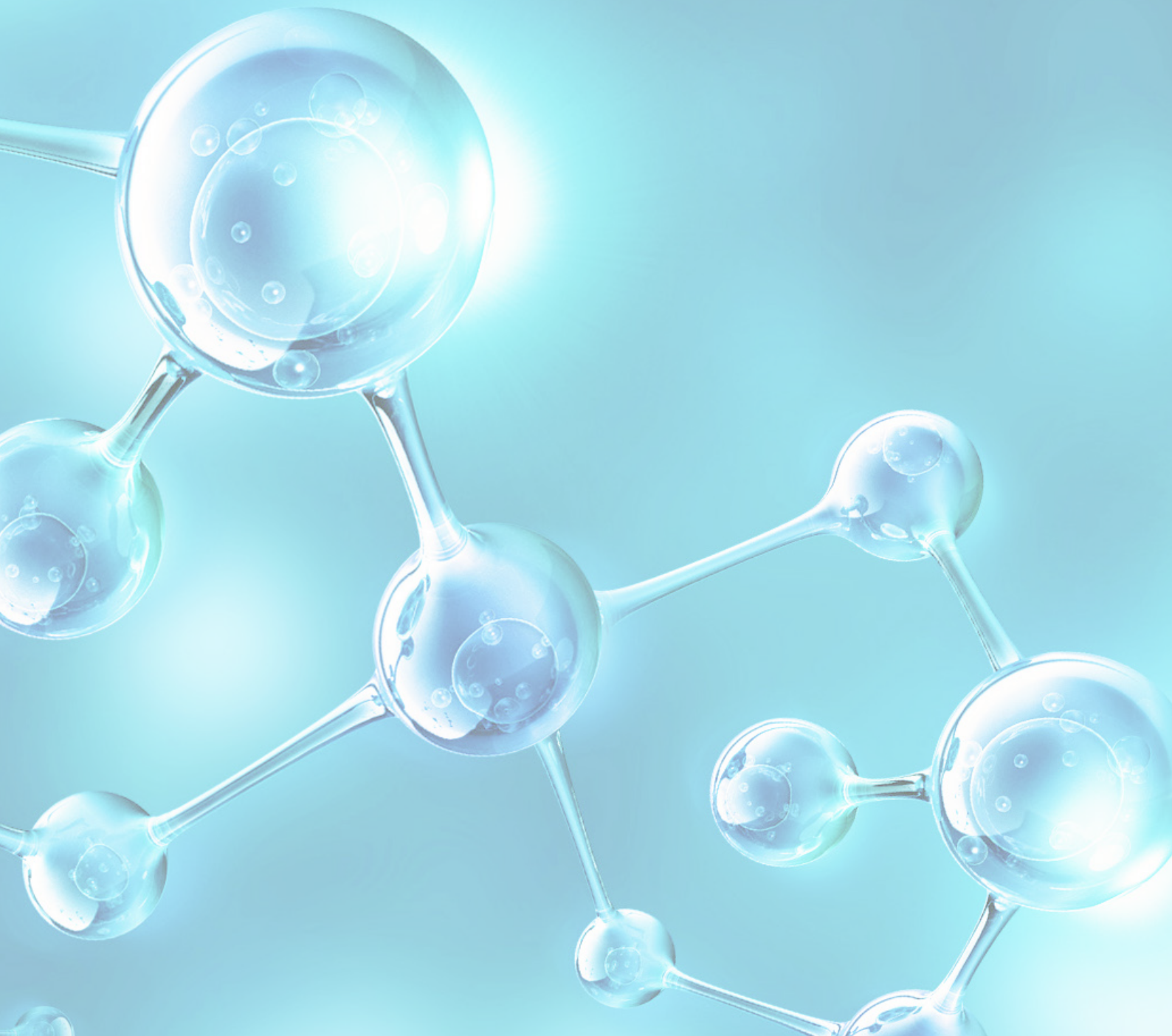
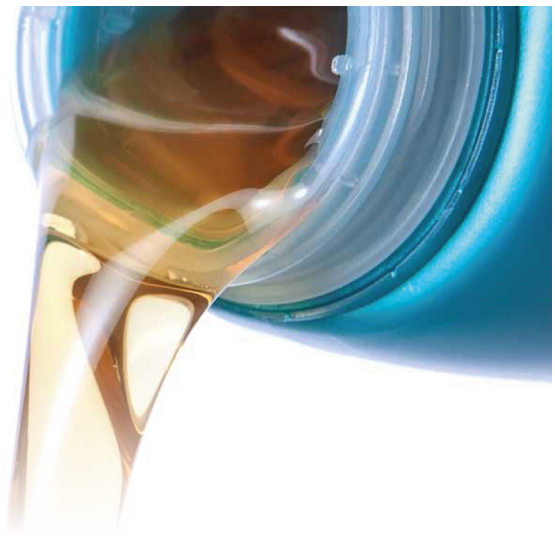
Polynt Composites

Resins
Tooling System



POLYNT COMPOSITES

Turn your ideas into shape
Fast Creation of FRP Moulds
with Polynt Low Profile Tooling Systems



Contents

Production Sites

Polynt Composites France S.A.

Polynt Composites Germany GmbH

Polynt S.p.A. and Reichhold S.r.l. (Italy)

Polynt Composites Norway AS (Norway)

Reichhold AS (Norway)

Polynt Composites Poland Sp. z o.o.

Polynt Composites Spain, S.L.U.

Polynt UK Ltd.

Polynt Composites UK Ltd.

Reichhold UK Limited

Polynt Reichhold Group

After the merger on May 2017 the new Polynt-Reichhold Group is a global Company in the Intermediates, Coating and Composite Resins, Thermoset Compounds, Gel-coats and niche Specialties.

This combination enhances the Group's leading position as a global vertically integrated specialty chemicals player, with significant global presence in Europe, North America and Asia, a strategy initiated by Polynt with the successful integration of PCCR and CCP in the last years and now further reinforced by Reichhold's global scale, extensive product portfolio and R&D competencies.

Polynt-Reichhold Group is known for its superior quality and impressive range of products and with its excellent distribution network it can provide first-class service to customers whatever their market. Customer Service and Technical Service teams are renowned for their customer focus, offering the best service even after products have left manufacturing.

The Group strives to keep customers satisfied, assisting them in producing premium quality products every time they use its products.

Product innovation is important for the Group's business and it's the reason for which it constantly works with customers to find solutions to problems.

Introducing new or improved products ensures that Polynt-Reichhold Group continue not only to deliver what the market wants and needs, but also when it is wanted and needed.

Turn your ideas into shape

In FRP manufacturing processes it is vital to use quality moulds in order to make quality parts. You have created a unique shape and surface appearance (gloss, texture), so you want it to be perfectly reproduced during scale up and commercial manufacturing. Meanwhile your moulds must be robust in practical use, and should be low in maintenance.

Different tooling systems are available to stand up to the many stressors in the production moulding process. Consideration needs to be given to mould dimensions and anticipated exposure to wear, such as mechanical stress, chemical attack and elevated temperatures. Depending ultimately upon the desired shape and/or surface quality, these include steel, aluminum, as well as FRP solutions based on polyester, vinyl ester and epoxy resin systems.

Polyester FRP moulds have gained a wide acceptance in the composite industry, because of the versatility of the polyester material and the attractive overall economics.

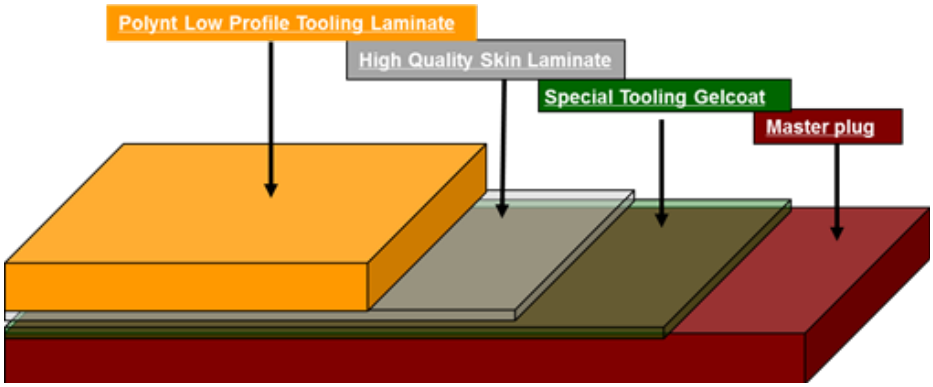



Benefits of Low Profile Tooling Systems:

Benefits	Features
Tools ready in days not weeks (tool production in only 20 % of the time vs. conventional FRP solutions). Significant reduction in labour costs.	Good Curing System. Better overall cure in early stage (allows to make more laminates in one go).
Suitable for Hand lay-up and Spray up. Special Infusion grades. Low viscosity. Improved mechanical properties.	Easy application. Large Moulds can be made in a closed process. Good reproducibility; low styrene emission. Excellent fiber wet out. Excellent heat resistance.
Elimination of surface defects and dimensional inaccuracies.	Close-to-zero shrinkage through fine-tuned low profile package. Exceptional surface quality.
Easy material handling during tool production.	Available as one-pack solution. Quick curing with standard MEKP peroxides. Visual Colour Change Built-in quality indication.

For further information please contact us

Polynt Low Profile Tooling Build-up



Special Tooling Gelcoat

Specially developed high gloss gelcoats with durable surface; excellent release properties; high resistance to heat and chemicals allows it to withstand repeated moulding cycles with good strength and abrasion resistance.
Available in different colours.
Possible application: Brush or Spray.

High Quality Skin Laminate

Selected laminating resins with an optimum cure in thin laminates and high mechanical properties to avoid any air entrapment between gelcoat and construction laminate.
Preferred application: Hand lay-up.

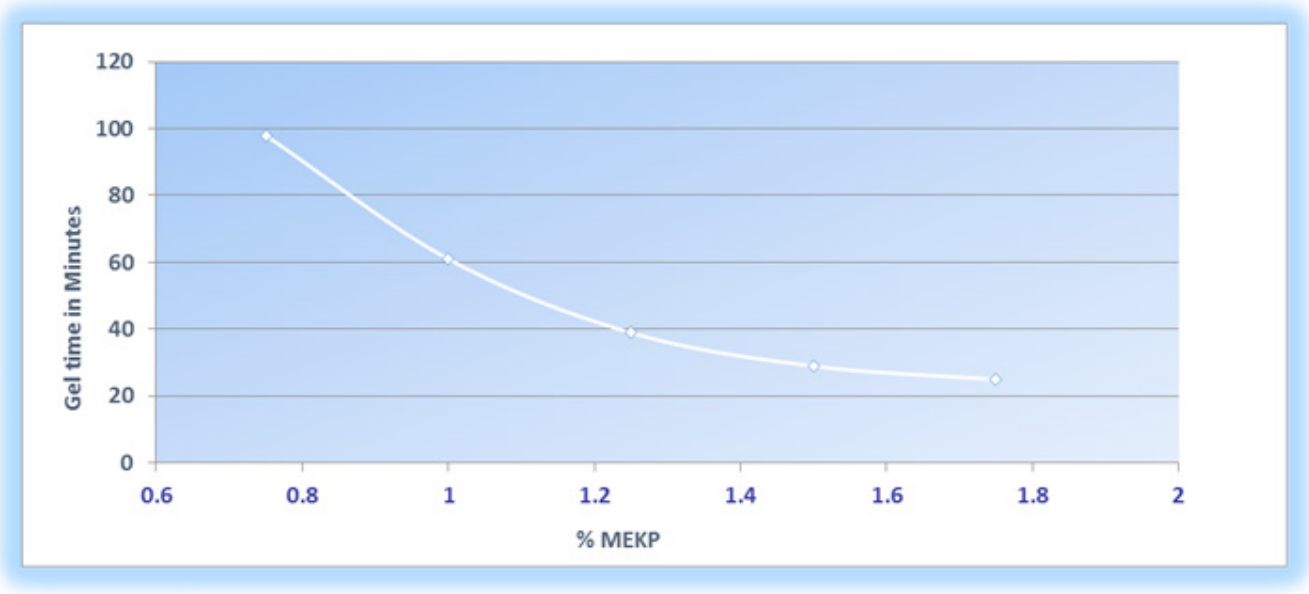
Polynt Low Profile Construction Laminate

Low profile resins systems with good wetting properties; high heat distortion temperatures and excellent dimensional accuracies.
Possible application: Hand lay-up/ Spay-up (Filled systems); Vacuum Foil Infusion (Non Filled).

Points of attention

- Master Plug. ensure that the plug is styrene and heat resistant. An optimum surface gives less repair/ surface finish on the Mould. Design shape which can be released. Use an approved mould release system.
- Tooling gelcoat. apply a minimum film thickness minimum 600 microns (cured). By brush: Apply in two layers to avoid air entrapment. By spray: Apply in 4 layers wet on wet, 150-200 microns each, with 4-8 min. interval between passes. Ambient room temperature and gelcoat temperature both between 18-25 °C. Air humidity should be 50-70%. Catalyst amount between 1.0-2.0%.
- Skin Laminate. apply 1 x 225 g/m² with 1 x 450 g/m² powder bonded glass mat or 2 x 300 g/m² to achieve the right curing. Skin laminate resins are specially designed for good wet out and fast cure in combination with high mechanical properties. Ensure that all the air is removed from the first layer and that the reinforcement conforms to all the sharp angles in the mould. Cure overnight.
- Construction laminate. Resins systems suitable for HLU/Spray-up are filled. Stir the resin well before use, as some filler settling and separation may occur during transport and storage. For application through spray-up processes, ensure equipment is used capable to handle high filler contents.

For optimum cure the thickness of the laminate should be at least 4 mm wet-on-wet (3 x 450 g/m2). When laminate thickness is below 4 mm the reactivity will be too low, and laminate can risk poor cure.



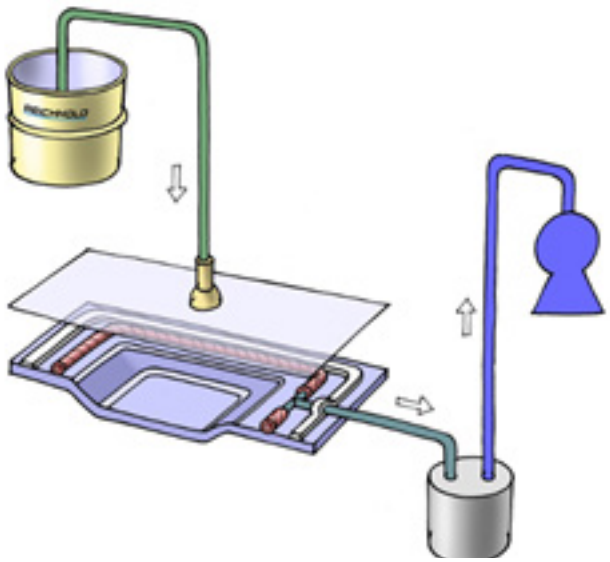
Geltime vs. Peroxide level

The gel time can be adjusted with standard MEKP peroxide. Lower peroxide levels (e.g. down to 0.75 %) will give an increase in gel time. Fluctuation of temperature will also influence the gel time.

- Demoulding. Time for de-moulding from the plug is typically 24 hours at room temperature. For improved tool curing and plug de-moulding, curing times of 2-3 days are recommended at 35-40°C (while the mould is still in the plug). Check Barcol Hardness before use, in order to confirm final cure.

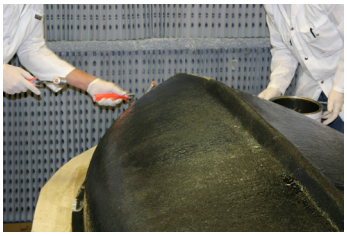
Low Profile Tooling by Vacuum Foil Infusion

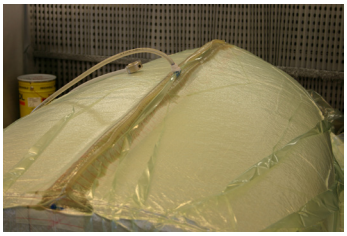
A continuous search for cleaner working conditions and higher demands on the end quality of the moulds is reached through a new way of producing moulds based on Vacuum Foil Infusion.



Benefits of Low Profile Infusion Tooling:

- Better controlled material usage
- Higher mechanical properties
- Weight reduction
- Less dependent on laminating skills
- Cleaner working conditions
- Low styrene emission



Advantages Vacuum Foil Infusion	Details
Low investments.	Only small modifications are required to existing open mould methods.
Improved laminate mechanical properties.	Higher density laminates with increased glass content versus hand lay-up / spray-up.
Good reproducibility: reduced dependence on workmanship.	As long as process parameters are reinforcement package design are kept constant.
Large products can be made in a closed process.	Highly effective for components with large surface area and complexity.
Very low styrene exposures and emissions.	Reduced ventilation cost possible.
Cleaner production.	More pleasant work environment.

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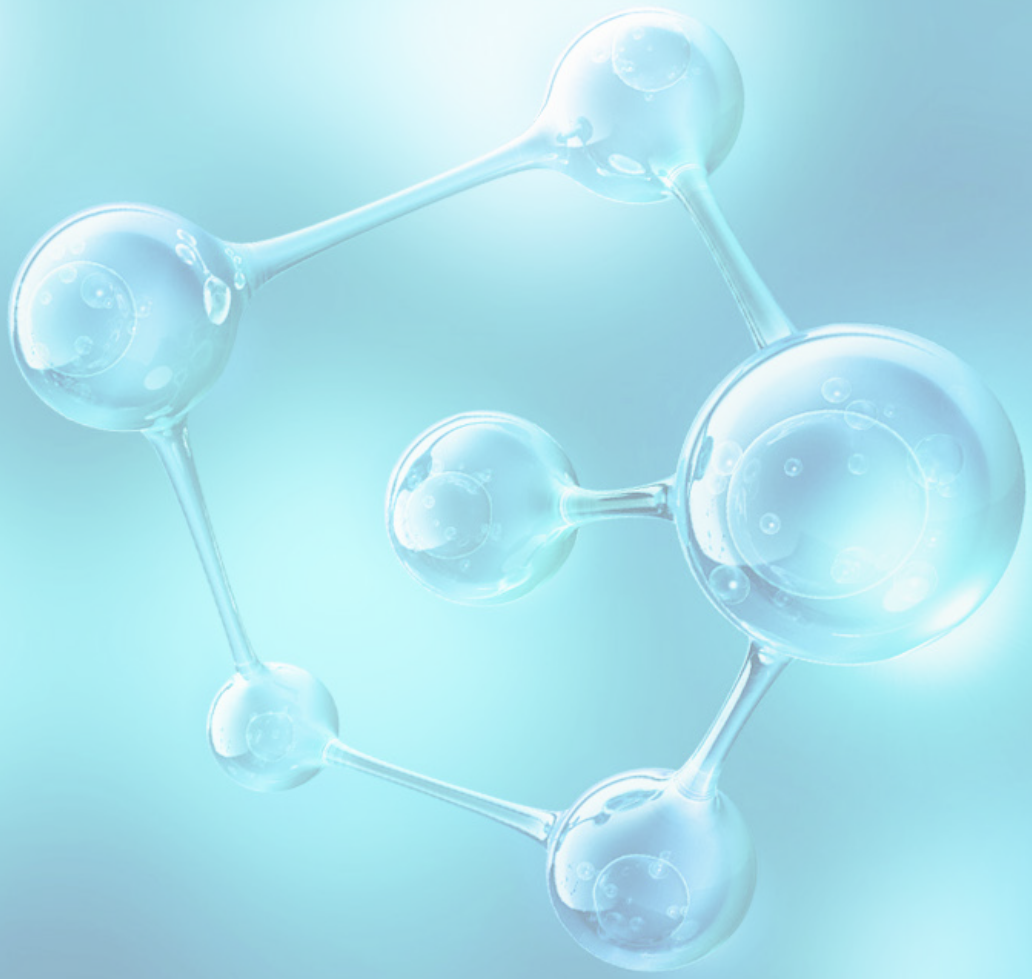

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