



GELCOATS AND RESINS

Smoother, safer, faster

A no-limit Conductive Mould-Making System!



HQ in Rastede (Oldb.)



buefa.de



The complete programme can be found on our homepage under: buefa.de

NEW CHEMISTRY IS INTELLIGENT

BÜFA Composite Systems produces tailor-made reactive resin specialities and complete solutions for its customers. Our outstanding technical service and comprehensive knowledge of machines and applications are what makes us a convincing system provider.

Our products may not be immediately recognisable at first sight, but they're widely used. Well-known companies from the automotive, rail and commercial vehicle, wind energy, construction, sanitary, tanks and pipes, boat & shipbuilding and swimming pools

industries make use of our high-quality thermoset resin systems. We manufacture these at our headquarter in Rastede near Oldenburg.

However, we don't just manufacture products. We develop ideas and innovations together with our partners, customers and suppliers and integrate them into the innovation process for custom-made solutions. There is no greater customer advantage.

Smoother, safer, faster!

Even more effective for better tools

OUR OBJECTIVE:

To develop a revolutionary mould-making system based on the latest findings in polymer chemistry - for even better tools in even less time - in an extremely cost-effective process!

OUR SOLUTION:

Serious high-tech! Thanks to nanotechnology and further improved curing chemistry.

- Dissipative surface
- Increased surface quality
- Perfect dimensional stability

Conductive mould



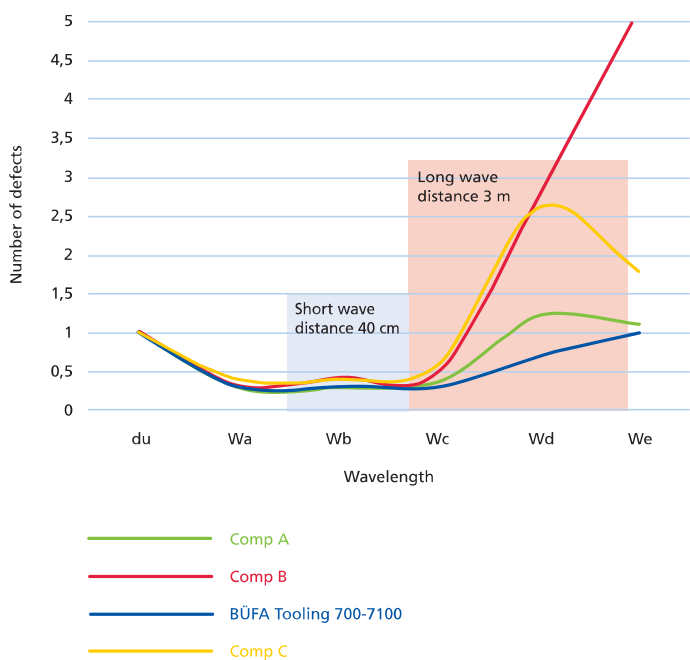
You're always on the right track economically with the BÜFA new Tooling System. You save time, profit from reduced use of materials and even spare the environment. And in terms of product quality, you're also playing in the premier division. Mechanical properties: top. Surfaces: brilliant! And occupational safety also benefits.

AT A GLANCE:

- Increased process safety
- Electrostatic charging and discharging are reliably prevented
- Minimises dust adhesion
- Significantly reduced cycle times
- High grade component surfaces: significantly reduced rippling
- Considerably increased economic efficiency



Measurement of surface quality (Wave Scan Dual)

SURFACE QUALITY:

Demoulding form plug

The Rostock company EIKBOOM GmbH is a medium-sized, family-run company; for more than 60 years they have been producing FRP components for the wind energy and boat & shipbuilding industries as well as many other industries. In the vehicle construction sector the company has specialised in the manufacture and delivery of vehicle body components and internal FRP elements.

EIKBOOM works with the new BÜFA Tooling System, consisting of the conductive BÜFA®-Conductive-Tooling Gelcoat, the 1st layer resin BÜFA®-Resin VE 0910 and BÜFA®-Resin VE 7100, the Low-Profile Tooling resin.



The new conductive BÜFA®-Conductive Tooling Gelcoat and the BÜFA mould-making resins can be processed absolutely without problems. One thing that's important for us here is, the safety aspect, since sparking during demoulding can be avoided using this conductive system.

On the other hand the system produces a higher quality surface result.

Meyk Rohde,
Operations Manager EIKBOOM GmbH

Nanotechnology for you!

BÜFA®-Conductive-Tooling Gelcoat

Probably the most innovative component of the new Tooling System is the new Conductive Tooling Gelcoat. It uses single wall carbon nanotubes (SWCNT) which make the thermoset resin conductive and can efficiently dissipate static electricity (constant electrical conductivity adjustable from 10^5 to 10^9 Ohm).

The keyword is: the "triboelectrical effect". Standard composite materials are non-conductors, and that's why tools and mouldings are oppositely charged during demoulding. As a result of which they attract each other. That not only increases the force that's needed for demoulding, electrostatic charging also results in dust adhesion which must be removed with a lot of effort.

Our conductive mould-making gelcoat finally clears up this problem. The nanotubes act like fine wires within the thermoset resin. And so, they draw tiny electrical "lines" through the material. As a result, electrical charges which are generated during demoulding can now be dissipated through a simple earthing point.

So, in effect, SWCNT use in our gelcoat means this: easier and faster demoulding. Mould cleaning with less effort. And at the same time, reduced wastage and increased component quality. And occupational safety also benefits; massively.



Earthing Point



Gelcoat application



Measuring layer thickness

AT A GLANCE:

- No more "electrical shocks" during demoulding
- Reduced dust attraction: increased surface quality, reduced cycle times
- Reduced force required for demoulding: less wastage, consistently high component quality
- The tool surface gloss is retained even after sanding and polishing
- A single earthing point is all that's needed even for large tools
- Increase in tool-making economy



The TÜV Nord (08/2018) test report certified the electrical conductivity of the gelcoat based on a example assembly with the BÜFA Conductive Tooling Systems. We will be happy to provide you with the certificate for your in-house Risk Assessment. Please contact us.

High-tech for high-gloss!

1st layer resin BÜFA®-Resin VE 0910

When assessing Gelcoat surfaces, rippling is also always an issue. We're setting a new standard for this with BÜFA® Resin VE 0910, our new 1th layer resin. Our new high-tech resin for the first layer under the visible gelcoat displays considerably improved curing properties. Resulting in, among other things, better throughcure of the product. Another advantage is the exceptionally low residual monomer content. This strictly limits the dreaded shrinkage of the laminate. Many rippling problems are already prevented from the outset as a result. Another advantage - the concurrently improved heat deflection temperature of our new 1th layer resin. It allows tools to last longer in thermally borderline applications.

FUNCTIONS OF 1ST LAYER RESINS:

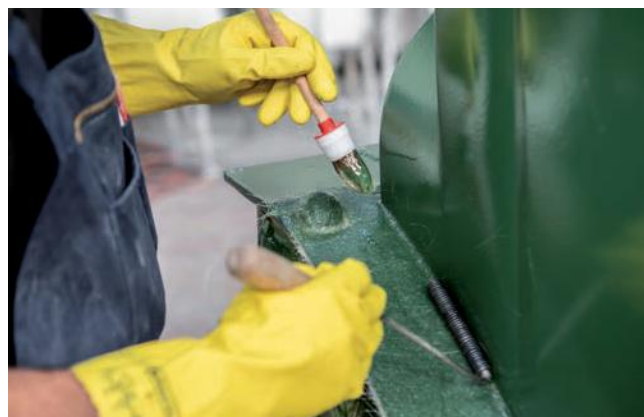
1. Class A-surface quality
2. Improved heat deflection temperature of the mould
3. Improved mechanical durability

AT A GLANCE:

- Less surface rippling
- Improved curing properties
- Increased heat deflection temperature
- Rapid fibre wetting with low monomer content



Application of first layer resin



Detail work

An innovative problem solver

The mould-making resin:
BÜFA® Resin VE 7100 Tooling

Our new BÜFA®-Resin VE 7100 Tooling is a vinylester with highly specialised low-profile additives and fillers which block the shrinking process. So the special curing characteristics are what makes our new Low Profile Tooling Resin special. Heat development is designed to suit thin as well as thick-walled laminate build ups. As a result, finally even outright thin (2 mm) laminates can be processed. And, on the other hand, now even laminates with up to 12 mm thick layers are no longer a problem. They are made in a single time-saving and economical operation.

And so, our BÜFA®-Resin VE 7100 Tooling has become a fine foil for particularly thin-walled tools. And at the same time a powerful booster for economical assembly of particularly large-format products. The new, hardened BÜFA tooling resin is of course equipped with the best mechanical properties.

The next advantage: Our BÜFA®-Resin VE 7100. Tooling features particularly low VOC content. Nonetheless our new low-profile resin is easy to process. And so, it's a premier league player when it comes to fibre wetting and viscosity. The result: outstandingly high process safety.



Applying mould-making resin



Layer build-up

AT A GLANCE:

- Very good mechanical properties, superb heat deflection temperature (120°C)
- Outstanding fibre wetting with low VOC-content
- Even 2 mm thin laminates cure reproducibly and reliably.
- Up to 12 mm thick layers can be applied in one operation - resulting in considerable time-saving
- Suitable for both hand lay-up and spray lay-up processes



Motor home alcove mould

Processing tips:

The mould to be produced or its finish quality is critically dependent on the condition of the master model. The degree of gloss and any unevenness in the master model are transferred to the mould. Hence the surface of the master model must be particularly

attention required. Please be aware that dust-free surroundings are required for mould-making. We recommend our Carnauba-Wax BF 700 (BÜFA®-BF 700 Mould release wax paste) as release agent for the master model.

STEPWISE LAMINATE BUILDUP:

1. GELCOAT APPLICATION:

The gelcoat can be applied using the brush or spray procedure. Application should be checked using a coating-thickness tester to ensure consistent layer thickness (recommended coating thickness 1000 µm). After the gelcoat is slightly cured, the earthing point should be placed on it.

2. 1ST LAMINATE LAYER:

After the gelcoat has cured, application of the laminate can be begun. The first layer beneath the gelcoat must be applied with particular care. It is especially important that all air bubbles between the gelcoat and the first layer are rolled out when doing this.

Glass fibre mats with a grammage of 150g/m² or 225 g/m² out of 15 tex filaments must be used for the first layer.

3. LAMINATING:

When the first laminate layer has cured overnight, the laminate should be sanded with sandpaper and the sanding dust has to be removed. Depending on the mould and the requirements for a particular wall thickness, building up of further laminate layers can be continued until the desired final thickness is reached.

4. POST CURE:

The laminated mould should be post-cured on the model for 8 hours at an increased temperature of approx. 70-80°C.

Mould reinforcement is then recommended.



BÜFA®-Conductive Tooling-System products are particularly suited to machine application. For this we recommend the sophisticated, rugged and very user-friendly machine technology of BÜFA Tec.

For example:

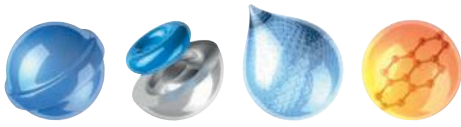
- Metering unit:
BÜFA®-Tec Polybar
- Gelcoat Spray Unit:
BÜFA®-Tec GSU ES1 „Easy Lift“
BÜFA®-Tec Delta EVO-LINE
BÜFA®-Tec Sigma 6 EVO-LINE
- Resin Roller Unit:
BÜFA®-UNI 150 EVO-Line
BÜFA®-UNI 275 EVO-Line
- Fibre Spray Unit:
BÜFA®-Tec Delta EVO-LINE,
BÜFA®-Tec Sigma 6 EVO-LINE



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buefatec.de



ARTICLE OVERVIEW

	Products	Item-No.	Colour	Application
Gelcoat	BÜFA®-Conductive-Tooling Gelcoat-S	720-0100	Unpigmented	Spray
		520-0101	Black	Spray
		520-0102	Green	Spray
	BÜFA®-Conductive-Tooling Gelcoat-H	720-0200	Unpigmented	Brush
		520-0201	Black	Brush
		520-0202	Green	Brush
	BÜFA®-VE-Tooling-Gelcoat-S	720-1000	Unpigmented	Spray
		520-1104	Black	Spray
		520-1108	Light-green	Spray
		520-1110	Orange	Spray
		520-1112	Grey	Spray
	BÜFA®-VE-Tooling-Gelcoat-H	720-2000	Unpigmented	Brush
		520-2107	Black	Brush
		520-2109	Light-green	Brush
		520-2111	Orange	Brush
		520-2113	Grey	Brush
1 th Layer Resin	BÜFA®-Resin VE 0910	700-0910	Brown	
Tooling Resin	BÜFA®-Resin VE 7100 Tooling	700-7100	Light-brown	



Composites

02-19 | Photo source: © BÜFA, Markus Monecke / Eikboom, Rostock, Courtesy of BYK-Gardner, Fotolia Spectral-Design The data outlined are approximate specifications and subject to correction. The above information is based on our present knowledge and experience. In view of the many possible influences during the use and application of our products, this information does not relieve the user from the need to conduct his/her own tests and experiments. No legally binding warranty of certain properties or of suitability for a certain purpose can be derived from these specifications. It is the responsibility of the recipient or processor of our products to ensure that any proprietary rights and existing laws and legislation are complied with. The current version of the relevant EU Safety Data Sheet should also be complied with. Technical datasheets and information can be found under www.buefa.de

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