

## Key Features

- Up to 90°C service temperature
- Hard Wearing
- Eliminates print-through
- Reduces risk of blisters
- Very Low shrinkage
- Can be used as vinylester laminating resin

## Product Description

High performance, unfilled vinylester laminating resin. UC1 Uni-Mould Coupling Coat offers excellent cured mechanical properties, low shrinkage, high service temperature and excellent chemical resistance. It can be used on its own as a vinylester laminating resin or as the coupling layer in the Uni-Mould rapid tooling system.

UC1 Uni-Mould Coupling Coat is part of the Uni-Mould universal mould making system and should be used in conjunction with UG1 Uni-Mould Tooling Gel Coat and UT1 Uni-Mould Tooling Resin to produce hard-wearing, polishable moulds of any size with zero shrinkage suitable for use in just about any composites process.

## Recommended Uses

UC1 is ideally suited for the following uses:

- As a coupling coat as part of the Uni-Mould Complete Mould Making System.
- As a vinylester laminating resin in mould or part production.

## Properties

The table below shows the typical uncured properties:

Property	Units	Resin
Material	-	Unfilled Vinylester Resin
Appearance	-	Beige Liquid
Viscosity @20 °C	mPa.s.	800
Density @20 °C	g/cm <sup>3</sup>	1.10
Non Volatile Content	%	62
Acid Value	mgKOH/g	12

## How to Use

The Uni-Mould Coupling Coat is designed to eliminate print-through of the mould reinforcement, to reduce the risk of blisters underneath the gelcoat by ensuring the gel is reinforced with a skin of resin and glass and to provide an ideal substrate for the main reinforcement.

Uni-Mould Coupling Coat should be catalysed at 1.5 - 2% using standard MEKP catalyst. Before application allow the catalysed resin to stand

for a few minutes to settle and de-gas. Resin should be applied in two applications with 100gsm CSM. We do not recommend the use of glass surface tissue in lieu of the 100gsm CSM.

Wet out the CSM thoroughly with the coupling coat resin and ensure that all air is removed from the reinforcement, that it is well wetted through and that the reinforcement is conforming to all the contours of the mould, particularly any tight corners.

## Mix Ratio

### Mix Ratio 1.5-2% MEKP Catalyst by Weight

UC1 Uni-Mould Coupling Coat should be mixed with standard grade MEKP Catalyst at a ratio of 1.5 - 2.0% MEKP Catalyst by weight.

You must maintain the correct overall ratio of resin to catalyst to ensure a proper cure. Failure to do so will result in a poor or only partial cure of the resin, greatly reduced mechanical properties and possibly other adverse effects.

## Mixing Instructions

Only weigh out and mix as much resin as you can use within the pot life.

Weigh or measure the exact correct ratio of resin and MEKP Catalyst into a straight sided container. Using a suitable mixing stick begin to mix the resin and catalyst together to combine them completely.

Mix thoroughly to ensure that the catalyst is well distributed throughout the resin. Care should be taken to avoid aerating the resin whilst mixing. Use a steady mixing action, moving material from the bottom and edges of the container into the middle.

Once you have finished mixing in one container, it is good practice to transfer the mixed resin into a second container and undertake further mixing of the resin using a new mixing stick. Doing so will eliminate the risk of accidentally using unmixed resin from the bottom or sides of the container.

## Pot-Life / Working Time / Cure Time

As with all resin systems, the pot-life/working time will vary significantly depending on the ambient temperature, the starting temperature of the gelcoat and catalyst and the amount mixed.

The following table shows typical pot life and cure times:

	Pot Life @ 20 °C	Initial Cure Time @ 20 °C	Full Cure @ 20 °C
Time	15 - 20 minutes	2 hours	7 Days

Our UC1 Uni-Mould Coupling Coat can be used in ambient temperatures between 15°C and 30°C. For best results, an ambient temperature of 20°C to 25°C is recommended. Ensure that both resin and catalyst containers are within this temperature range before use.

## Full Cure / Post-Cure

As with most resin systems, where Moulds cure in normal ambient temperatures, full cure is not reached for several days. Although parts will be handleable after the listed demould time (at 20°C), full mechanical properties will take at least 7 days to develop in (at 20°C). Where possible, avoid exposing the cured mould to full service rigours for at least this time.

To ensure that the Uni-Mould based mould achieves its maximum operating temperature, a ramped elevated temperature post-cure is recommended. Allow the mould to cure fully at room temperature for a minimum of 24 hours before post curing. The post cure cycle is as follows:

- 60°C for 10 hours
- 70°C for 2 hours
- 80°C for 2 hours
- 90°C for 2 hours

Ideally the mould should be supported during the post cure process to minimise the chances of distortion or sagging. Once the post-cure is complete, allow the mould to return to room temperature naturally before use - preferably by letting it cool down in the oven. If the temperature drops suddenly, distortion or warping can occur. Once the mould is fully cooled, it can then be put into service at temperatures up to 90°C.

## Mechanical Properties

### Cured Resin Properties

*These properties describe the resin after a 24 hour cure at room temperature followed by the recommended post-cure.*

	Units	Result
Max Service Temperature	°C	90
Hardness	Shore D	80
Elongation at break	%	3.0 - 4.0
Tensile strength	MPa	120.0
Flexural strength	MPa	149.6
Flexural Modulus	GPa	8.3

## Transport and Storage

The resin should be kept in tightly seal containers during transport and storage. The resin should be stored in ambient conditions of between 15°C (50°F) and 25°C (77°F).

When stored correctly, the resin will have a shelf-life of 3 months. Although it may be possible to use the resin after a longer period, a deterioration in the performance will occur.

Pay particular attention to ensuring that containers are kept tightly sealed. Resins will deteriorate quickly when exposed to air.

## Disclaimer

This data is not to be used for specifications. Values listed are for typical properties and should not be considered minimum or maximum.

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