

Key Features

- Ideal For Resin Infusion
- Ultra Low Viscosity Resin
- Outstanding Wetting Abilities
- Good Mechanical Properties
- Variable Catalyst Ratio & Pot Life

Product Description

Our IP2 is a high performance polyester resin that has been specifically formulated for use in resin infusion composites production.

As an infusion resin it is ultra-low viscosity ensuring that is able to quickly infuse through a range of reinforcements. Its good mechanical strength makes it ideally suited for use with high performance reinforcements such as carbon fibre and aramids like Kevlar.

The resin also exhibits good cured mechanical properties far in excess of many more traditional polyester resins, meaning stronger, lighter, higher performance parts.

Recommended Uses

This is a high performance low viscosity polyester resin formulated specifically for use in resin infusion composites production. The resin cures to a clear finish.

Being a polyester based infusion resin, means this is a great resin to use in traditional polyester based moulds which otherwise would need to be remade to be compatible with typical epoxy infusion resins. This means you can retain the versatility of your moulds using wet lay for the more budget parts and infusion for the more advanced higher quality parts. The resin also exhibits very good clarity making it also suitable for use when laminating unpainted carbon fibre composites.

Properties

The table below shows the typical uncured resin properties:

Property	Units	Resin
Appearance	-	Mauve Liquid
Viscosity @25 °C	Poise	1.6
Specific Gravity @25 °C		1.08
Volatile Content	%	50
Acid Value	Mg KOH/g	22
Stability at 20 °C	months	3
Geltime @25 °C @ 2% MEKP	Minutes	85

How to Use

IP2 is a chemical product for professional use. It is essential to read and understand the safety and technical information before use.

Follow the guidelines for safe use outlined in the SDS which include the use of appropriate hand and eye protection during mixing and use.

Catalyst Ratio

Catalyst Ratio 1 - 3% MEKP by Weight

IP2 Polyester Infusion Resin should be mixed with MEKP Catalyst at a ratio of 1-2%, by weight. Resin to catalyst ratios above are listed as parts by weight although parts by volume will effectively yield the same results.

Our IP2 Polyester Infusion Resin can be mixed with different amounts of MEKP catalyst to achieve different pot life and cure times at different temperatures.

Be aware that the higher the ambient temperature, the quicker the resin will cure and thus adding high levels of MEKP should be avoided to ensure you get a reasonable pot life and reduce the chance of an exothermic reaction.

Mixing Instructions

IP2 is a highly reactive (fast curing) resin system. 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 catalyst into a straight sided container. Using a suitable mixing stick begin to mix the resin and catalyst together to combine them completely.

Spend at least one minute mixing the resin and catalyst together, paying particular attention to the sides and base of the container. Remember: Any resin that has not been thoroughly combined with catalyst will not cure.

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

IP2 is a highly reactive resin system and once the resin has been mixed with the catalyst, the reaction will start to give off heat (exotherm) which will further accelerate the cure of the resin, especially when the resin is in the mixing pot.

Transfer the resin from the mixing pot onto the part as soon as possible to extend the working time and avoid the risk of uncontrollable rapid cure in the mixing pot.

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

IP2 can be used in ambient temperatures between 15°C (59°F) and 30°C (86°F). For best results, an ambient temperature of 18 - 20°C (68°F) is recommended. Ensure that both resin and catalyst containers are within this temperature range before use.

During an infusion, you can reduce the chance of the resin 'gelling' in the pot by mixing small quantities at a time and topping up the resin jug as the resin is drawn into the laminate.

Once the resin is in the laminate, it is much less likely to exotherm and gel before you want it to.

The table below gives an indication of pot-life and cure times for different temperatures and MEKP catalyst ratios:

	1% MEKP	2%MEKP	3%MEKP
Pot Life in minutes @ 15 °C	-	-	54
Pot Life in minutes @ 20 °C	85	48	34
Pot Life in minutes @ 25 °C	-	-	21

The resin, mould and workshop should all be at, or above, 15°C before curing is carried out.

Typical demould time is 24hrs at 25°C however full cure will not be reached for a further 7 days.

Full Cure / Post-Cure

As with most resin systems, where parts cure in normal ambient temperatures, full cure is not reached for several days. Although parts will be handleable after the listed demould time (at 25°C), full mechanical properties will take at least 7 days to develop in (at 25°C). Where possible, avoid exposing the cured resin to full service rigours for at least this time.

As with many post-cure cycles for resins, the post-cure cycle for our IP2 Polyester Infusion Resin is not too sensitive and a range of different post-cure cycles will produce good results,

The recommended cycle is as follows. The laminate should be allowed to cure for 24 hours at 20°C, and then be oven cured for 16 hours at 40°C or 3 hours at 80°C.

Mechanical Properties

Cured Resin Properties

	Units	Cured Resin
Barcol Hardness (Model GYZJ 934-1)		35
Deflection Temperature under load (1.8 MPa)	°C	75
Water Absorption 24 Hours at 23°C	mg	10
Tensile Strength	MPa	66
Tensile Modulus	MPa	3580
Elongation at Break	%	2.5
Specific Gravity at 25°C		1.19

Transport and Storage

Resin and Catalyst should be kept in tightly seal containers during transport and storage. Both the resin and catalyst should be stored in ambient conditions of between 10°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 of the resin will occur, especially in relation to clarity and cure profile.

Pay particular attention to ensuring that containers are kept tightly sealed. Epoxy hardeners especially 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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