

## ICOM PO RESIN QUICK TOOLING 321-ZERO

### DESCRIPTION

**ICOM PO Resin Quick Tooling 321-ZERO** is a zero shrink, thixotropic, pre-accelerated unsaturated polyester resin which includes filler and is designed for fast mold production. **ICOM PO Resin Quick Tooling 321-ZERO** eliminates the fiber print through below gel coat and gives shiny mirror-like molds. **ICOM PO Resin Quick Tooling 321-ZERO** has a special accelerator combination which gives rapid barcol development and fast cure. No shrinkage and perfect dimensional stability of molds is possible with **ICOM PO Resin Quick Tooling 321-ZERO**.

- Zero shrinkage provides perfect fit to the plug dimensions.
- **ICOM PO Resin Quick Tooling 321-ZERO** is designed for rapid mold making and provides up to 80 % savings on labour and time.
- Low styrene ratio and LSE characteristics lower the styrene emission.
- Perfect surface quality with mirror like surfaces.
- With high mechanical and thermal properties of **ICOM PO Resin Quick Tooling 321-ZERO** it is possible to have long service life for molds.
- Suitable for hand lay-up and spray-up applications.

### PROPERTIES OF THE LIQUID RESIN

Brookfield viscosity (ISO 2555 - 23 °C - sp4, 100/10 rpm)	850 cp ± 20 %
Specific gravity (ISO 1675)	1.38 g/cm <sup>3</sup> ± 5 %
Gel time (ISO 2535) (23 °C - 2 % MEKP on 100 g)	35 minutes ± 40 %
Monomer content (ICON 003)	32 % ± 12 %

### PROPERTIES OF THE CURED RESIN

HDT ISO 0075-A ISO 0075-B	80 °C ±10 % 90 °C ±10 %
Barcol Hardness (Barcol 934-1) ASTM-D 2583	47 ± 10 %

### MECHANICAL PROPERTIES OF THE CURED RESIN

Flexural strength * (ISO 0178)	170 MPa ± 10 %
Flexural modulus * (ISO 0178)	8000 MPa ± 10 %
Elongation at break * (ISO 0178)	6% ± 10 %
Tensile strength * (ISO 0527)	102 MPa ± 10 %
Modulus of elasticity in Tensile * (ISO 0527)	6200 MPa ± 10 %
Elongation at break * (ISO 0527)	3.6 % ± 10 %
Izod Impact Strength * (ISO 0180)	22 kJ/m <sup>2</sup> ± 10 %

\*Test realized on a laminate post cured for with 5 layers of 450 g/m<sup>2</sup> chopped strand mat.

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### RECOMMENDATIONS BEFORE USE

Mix **ICOM PO Resin Quick Tooling 321-ZERO** well before use and before each new application for a homogenous product.

### PROCEDURE FOR MOULD PRODUCTION

#### **Standard Mold Application:**

- 1. Step:** Apply Gelcoat with 600-800 microns at least 2 layers (4 layers better); % 1-2 MEKP
- 2. Step:** Surface Veil with **ICOM PO Resin Quick Tooling 321-ZERO**
- 3. Step:** Lamination Layers  
5-6 layers 300 gr/m<sup>2</sup> or 4-5 layers 450 gr/m<sup>2</sup> with **ICOM PO Resin Quick Tooling 321-ZERO**  
**Wait for the cure of the laminate (An increase and decrease of laminate temperature)**  
4-5 layers 300 gr/m<sup>2</sup> or 4-5 layers 450 gr/m<sup>2</sup> with **ICOM PO Resin Quick Tooling 321-ZERO**  
**Wait for the cure of the laminate (An increase and decrease of laminate temperature)**  
Continue the same procedure up to the desired thickness.

#### **High Performance Mold Application (RTM molds, etc.):**

- 1. Step:** Apply Gelcoat with 600-800 microns at least 2 layers (4 layers better); % 2 MEKP or % 2 CHP
- 2. Step:** Surface Veil + **ICOM PO Resin Quick Tooling 321-ZERO**
- 3. Step:** Skin Coat and 300 gr/m<sup>2</sup> glass fiber with ICOM PO Resin Epoxy Vinylester 701-TA
- 4. Step:** Lamination Layers  
5-6 layers 300 gr/m<sup>2</sup> or 4-5 layers 450 gr/m<sup>2</sup> with **ICOM PO Resin Quick Tooling 321-ZERO**  
**Wait for the curing of the laminate (the temperature of the laminate increases and decreases)**  
4-5 layers 300 gr/m<sup>2</sup> or 4-5 layers 450 gr/m<sup>2</sup> with **ICOM PO Resin Quick Tooling 321-ZERO**  
**Wait for the curing of the laminate (the temperature of the laminate increases and decreases)**  
Continue the same procedure up to the desired thickness.

**Important Note:** In order to obtain zero shrink property **ICOM PO Resin Quick Tooling 321-ZERO** has to be applied at least 3-4 layers of 450 gr/ m<sup>2</sup> or 4-5 layers 300 gr/m<sup>2</sup> wet on wet in one application. Please follow the above described procedures. If the application area is large to apply 4-5 layers at the same time, then the area should be divided into pieces suitable for multi-layer application. **ICOM PO Resin Quick Tooling 321-ZERO** is formulated for methylethylketone peroxide (MEKP) hardeners, **different hardeners can change gel and cure time**. Very low temperature may not give good results. The lowest temperature for polyester lamination is 15 °C, lower temperatures are not recommended.

### STORAGE CONDITIONS AND HANDLING

Storage life: **ICOM PO Resin Quick Tooling 321-ZERO** resin is stable for minimum 6 months from date of production. The product must be stored in original closed packaging at a temperature between 5 °C and 23 °C, away from direct sunlight.

Store in darkness and keep in 100 % light tight containers and keep lid firmly closed.

This resin is subject to the Highly Flammable Liquids Regulations.

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All information is given, based upon our best knowledge, but without liability to us. Data has been obtained by laboratory experiments made by our supplier. Since the condition under which the product is consumed is outside of our control, the product should be tested before use.