

Data sheet: vacuum casting resin 6235

Description		Polyurethane resin
Features	Well-balanced overall physical properties, specifically developed for vacuum casting application. Pigmentable.	
Suitable for		
Cured properties		Test / ISO standard where applicable
Colour of article	Milky white	
Specific gravity	1.23 g/cm ³	
Transparency	Translucent	
Shore hardness	83 D	868
Tensile strength	67 MPa	R 527
Yield strength	67 MPa	R 527
Tensile modulus	1 850 MPa	R 527
Elongation at break	15 %	R 527
Elongation at yield	3 %	
Bending strength	80 MPa	178
Young's modulus in flexure	1 800 MPa	178
Impact strength	20 kJ/m ²	180 Izod V Notch
Shrinkage	0.3 %	
Deflection temperature under load	95 °C 100 °C	75-1 (1.80 MPa) 75-1 (0.45 MPa)
Glass transition temperature	115 °C	TMA Method
Coefficient of thermal expansion	9×10 ⁻⁵ /°C	
Thermal conductivity	0.233 W/m K	BS 874
Demould time	25 min to 60 min	Mould temperature, over 70 °C
Processing information		Notes
Colour of resin	Part A Not coloured Part B Clear, pale yellow	
Viscosity	Part A 800 mPa.s Part B 200 mPa.s	At 25 °C
Specific gravity	Part A 1.12 Part B 1.20	At 25 °C
Mix ratio A:B	1:2	Parts by weight
Pot life	330 s 220 s	100 g at 25 °C 100 g at 35 °C

The information in this data sheet is provided for general guidance only and must not be relied upon as a definitive statement of the product's properties or suitability. Renishaw will not be liable for the consequences of any decision by you to use the product and you must conduct your own testing to determine whether or not the product is suitable for your needs.

Handling procedure

Casting procedure

- Before use, warm up part A to 40 °C to 50 °C and shake well.
- Pre-degassing, degas both part A and B in a degassing chamber for about 5 minutes. Degas material as much as you need. It is recommended to degas the material which has been pre-heated to a temperature of 40 °C.
- Temperature of resin, keep a temperature of 40 °C for both parts A and B during casting. The higher the temperature of the resin the shorter the pot life becomes. Conversely, the pot life gets longer when the resin is at a lower temperature. Low resin temperature may cause insufficient mixing and poor curing.
- Mould temperature, maintain a silicone mould temperature of 70 °C. Low mould temperature may cause poor curing and deterioration of the physical properties. Mould temperature should be controlled precisely as it affects the dimensional accuracy of the finished article.
- Casting containers should be set in such a way that part A is added into part B. Apply vacuum in the chamber and degas part B for 5 mins to 10 mins while it is stirred from time to time. Add part A into part B and stir for 40 s to 60 s and then cast the mixture into the silicone mould immediately.
- Curing condition, place the filled mould in a thermostatic oven at 70 °C for 25 mins to 60 mins and demould the article. Conduct post curing at 70 °C to 80 °C for 2 hrs to 3 hrs depending upon the requirements.
- For full instructions on casting procedures refer to *Vacuum casting techniques user guide*, H-5800-0660, available at www.renishaw.com

Special notes

- Adding water into part A may lead to the generation of air bubbles in the cured product. If this happens,

it is recommended to heat part A to 100 °C and degas it under vacuum for about 30 mins

- Part B may react with moisture to become turbid or to cure into a solid material. Do not use the material when it has lost its transparency or it has shown any hardening so as not to cause deterioration of physical properties.

Storage

As both parts A and B are sensitive to water, avoid not only the mixture of water but also the prolonged contact with moisture. Close containers tightly after use. Part B in part or in whole may freeze when it is stored for long periods of time at temperatures below 5 °C. Frozen resin can be used after melting. Warm up the container to 70 °C for 1 hr to 2 hrs and use the material after stirring it well.

Part B is prone to deteriorate by prolonged heating at temperatures over 50 °C. The container can be inflated by the inner pressure increase.

When part B is stored in a frozen state, it deteriorates more quickly than liquid resin. It is recommended to melt completely and store at 20 °C to 25 °C.



Please follow the correct procedure for use in your vacuum casting system, as set out in its operating instructions.



Always follow the instructions in the Product Safety Data Sheets and always work in accordance with the safety instructions of the materials manufacturer. Safety Data Sheets can be found at www.renishaw.com.



Wear suitable respiratory protection, safety gloves and safety goggles during the entire filling procedure in accordance with the Product Safety Data Sheets.

