



Two-Part Polyurethane Resin

Technical Data Sheet (TDS)

Product Summary:

PolyForge® is our very own high-performance, odourless, two-component polyurethane system engineered for rapid demould times and versatile manufacturing applications. Mixed at a simple 1:1 (A+B) ratio by weight, this efficient system offers very low viscosity, allowing it to be used either unfilled for prototyping and model-making, or filled with mineral or metallic fillers for robust pattern-making tasks.

Mould Preparation:

Ensure the mould is clean and dry. If the mould is made from metal, wood, or resin, use a release agent. For flexible moulds, use Industrial Plasters' ArtTV silicone rubber or similar. Wooden moulds should be well-sealed with a varnish and/or wax-based release agents.

Mix Ratio (Parts A+B): 100 : 100 by weight

Mixing Instructions:

- Shake Part A thoroughly to homogenise.
- Components should be at 20-25°C before mixing.
- For unfilled, add the correct amount of Part B to Part A and stir for 30 seconds.
- Pour carefully in one place to avoid air inclusion.
- For filled applications, up to 150% filler is recommended. Use Industrial Plasters Aluminium Metal Powder for high-temperature applications applications.
- Large quantities produce more exotherm and gel faster than small amounts.

Curing:

Casting can generally be demoulded in 15-30 minutes at room temperature, though this varies by thickness. When casting thin wall sections, ensure materials are at least 20-25°C to facilitate a good cure.

Storage:

Store in original, unopened containers between 20-25°C. Part B may crystallise if stored below 20°C. Keep containers tightly sealed to prevent moisture absorption. PolyForge® has a shelf life of 6 months from the date of production.

Sizes Stocked:

Industrial Plasters stocks PolyForge® in 5kg steel canisters. For bulk pricing, please contact us.

Both parts are required for the product to work.



Product Data:

Property	Units	Part A	Part B	Mix
Material	-	Formulated Polyol	Isocyanate	Polyurethane
Appearance	-	Cream liquid	Brown Liquid	Beige Liquid
Viscosity (25°C)	mPa.s	180-280	45 - 65	120 - 160
Density (25°C)	g/cm ³	0.97 – 1.02	1.0 - 1.15	1.04 - 1.09
Pot Life (200g, 25°C)	Minutes	-	-	2 - 3
Demould Time (200g, 20mm, 25°C)	Minutes	-	-	15 - 20
Demould Time (20g, 2mm, 25°)	Minutes	-	-	25 - 30

Cured Properties:

Properties	Standard	Units	PolyForge®
Hardness	BS 2782: Part 3: Method 365B	Shore D	70 – 75
Linear Shrinkage	500 x 50 x10 mm	%	< 1.00
Tensile Strength	BS 2782: Part 3: Method 320B	MPa	25 – 30
Elongation at Break	BS 2782: Part 3: Method 320B	%	4.5 – 6.5
Flexural Strength	BS 2782: Part 3: Method 335A	MPa	30 – 35
Flexural Modulus	BS 2782: Part 3: Method 335A	MPa	500 – 1000
Heat Distortion Temperature (HDT)	TMA	°C	70 - 75

Supplier Information:

Industrial Plasters Ltd is a well-established specialist supplier of quality moulding and casting materials, including gypsum casting plasters, silicones, resins, clays, and everything in-between.

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