

Parts In Minutes™

Vacuum Grade Polyurethanes

Parts In Minutes™ vacuum grade polyurethanes are specifically developed for use in vacuum casting equipment, and simulate the appearance and physical properties of most engineering thermoplastics for rapid prototyping or short series production.

- **Fast production of high quality prototypes**
- **For form, fit and function testing**
- **Fine details and surface textures easily reproduced**
- **Accurate and dimensionally stable parts**
- **Materials can be coloured**
- **Reduced time and costs in getting products to market**



Radio housing



Mobile phone housing



Flexible hose



Voltmeter housing

Two new transparent systems are now available, UV stable or non-UV stable. Both versions can be pigmented with inks or polyurethane based colouring pastes whilst still retaining their transparency: A crucial benefit for designers who will be able to achieve a part which displays both aesthetic qualities as well as dimensional accuracy. The systems are formulated for easy processing and are optimised for use with vacuum casting equipment. Alternatively, they can be processed via dispensing and mixing equipment and injected into moulds under vacuum.

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Product reference	Ureol® 5231-VG	Ureol® 5232-VG	Ureol® 5233-VG	Ureol® 5234-VQ	Ureol® 5235-VG	Ureol® 5236-1-VG	Ureol® 5237-VG	Ureol® 5238-VG	Ureol® 5239-VG
Mix ratio- parts by weight isocyanate:polyol	30 : 100	100 : 100	100 : 31	100 : 30	100 : 30	100 : 100	100 : 70	90 : 100	115 : 100
Mix ratio- parts by volume isocyanate:polyol	26 : 100	90 : 100	100 : 31	100 : 30	100 : 30	90 : 100	100 : 50	77 : 100	100 : 100
Product description	Black system - simulates rubber. Flexible with good tear resistance and excellent memory.	Amber system - simulates PE/PP. Pigmentable with good temperature resistance	White system - simulates PP. Good temperature resistance and high impact strength	White system - simulates PP/ABS. Pigmentable with high temperature resistance and good impact strength	Black system - simulates PP/ABS. High temperature resistance and good impact strength	Neutral system - simulates ABS. High flexural modulus with a longer pot life	Black, glass filled system - simulates ABS. High flexural modulus and high temperature resistance	Transparent system - simulates ABS. Pigmentable with excellent clarity and optical properties	Transparent system - simulates ABS. Pigmentable, UV stable with excellent clarity and optical properties
Pot life at 25jC (mins)	ca. 5	ca. 5	ca. 6	ca. 6	ca. 6	ca. 20	ca. 9	ca. 10	ca. 11
Demoulding time (mins)* (Mould at 40 - 70 jC) *Depends on wall thickness	ca. 60 - 120	ca. 60 - 90	ca. 45 - 60	ca. 45 - 60	ca. 45 - 60	ca. 90 - 120	ca. 30 - 50	ca. 90 - 120	ca. 90 - 120
Shore hardness	ca. 65 (A)	ca. 78 (D)	ca. 77 (D)	ca. 79 (D)	ca. 79 (D)	ca. 78 (D)	ca. 81 (D)	ca. 80 (D)	ca. 80 (D)
Flexural modulus (MPa)		ca. 1200 - 1300	ca. 1300 - 1400	ca. 1400 - 1550	ca. 1400 - 1550	ca. 1800 - 2000	ca. 3300 - 3600	ca. 1900 - 2100	ca. 1750 - 1850
Impact Strength (Charpy) (KJ/m²)		ca. 35	ca. 95	ca. 50	ca. 50	ca. 25	ca. 25	ca. 95	ca. 95
Elongation at break (%)	ca. 300	ca. 15	ca. 25	ca. 12 -	ca. 12	ca. 4	ca. 2	ca. 5	ca. 13
Parts temperature resistant to: (jC)	ca. 70	ca. 115	ca. 105	ca. 120	ca. 120	ca. 85	ca. 125	ca. 90	ca. 90
Maximum wall thickness (mm)	20mm	10mm	5mm	5mm	5mm	12mm	10mm	10mm	10mm
Pack Sizes	Isocyanate	4 x 3 kg	4x3 kg	4 x 3 kg	4 x 3 kg	4x3 kg	4 x 3 kg	4 x 2.7 kg	4x3 kg
	Polyol	4 x 0.3 kg	4 x 1 kg	4 x 1 kg	4x 1 kg	4x 1 kg	4 x 1 kg	4 x 0.9 kg	4x 1 kg
		4 x 3 kg	4x3 kg	4x 1 kg	4x 1 kg	4 x 3 k g	4 x 2.1 kg	4 x 3 k g	4 x 2.6 kg
		4 x 1 kg	4 x 0.31 kg	4 x 0.3 kg	4 x 0.3 kg	4x 1 kg	4 x 0.7 kg	4x 1 kg	4 x 0.87 kg