RAKU® TOOL

PR-3654 / PH-3908

Prototyping System

Fast curing, glass fiber filled, two component polyurethane system

Key Properties

- Simulates PP / ABS
- Temperature resistant up to 100°C
- Impact resistant
- No brittle phase
- Glass fiber filled

Applications

- Functional prototype parts
- Pilot production / short run production
- Rapid prototyping

Processing Properties

		Unit	PR-3654	PH-3908
Color	visual		black	brown
Mix ratio		pbw	100	53
Mix ratio		pbv	100	55
Density	DIN 2811-1	g/cm³	ca. 1.27	ca. 1.22
Viscosity at 25 °C	DIN 53019-1	mPa·s	3,000 - 3,500	20 - 25

		Unit	PR-3654 / PH-3908
Pot life at 25 °C	100 ml	sec	50 - 60
Max. layer thickness		mm	4
Demold time		min	10 - 20

Cured / Mechanical Properties

Cure		Unit	PR-3654 / PH-3908 1h at RT + 14h at 100°C	PR-3654 / PH-3908 24h at RT
Color		visual	black	black
Density	ISO 1183	g/cm³	ca. 1.30	ca. 1.30
Hardness	ISO 868	Shore D	75 - 80	70 - 75
Deflection temperature, HDT	ISO 75	°C	95 - 100	60 - 65
Tensile strength	ISO 527	MPa	45 - 50	40 - 45
Elongation at break	ISO 527	%	10 - 15	10 - 15
Flexural strength	ISO 178	MPa	70 - 75	65 - 70
Flexural modulus	ISO 178	MPa	2,000 - 2,500	2,000 - 2,500
Impact strength Charpy (edgewise)	ISO 179-1/1eU	kJ/m²	25 - 30	30 - 35

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Processing

The processing temperature and material temperature should be between 20-25°C.
The A component needs to be stirred well before use as some fillers might be prone to sedimentation.
Hand mixing or manual processing of the material is not recommended. To process the material it is recommended to use a two component low pressure casting machine with a static dynamic mixer. The material must be cast into the mold during the pot life time but not too fast to avoid any air entrapment. The recommended material temperature must be observed. Too high or low a material temperature will change the viscosity (high/low) and have a direct influence on the mixing ratio set up on the machine. Changes in the mixing ratio will result in faults in the finished part.
The mechanical properties and temperature resistance are only obtained through a post cure according to the recommended cure schedule.
The in the product contained glass fibers can lead to increased wear on the pumps.

Recommended cure schedule

After initial curing at room temperature for 1-2 hours depending on the size and thickness of the parts, the parts must be heated up to 100°C in steps and post cured for 14 hours at 100°C, then cooled down gradually. The curing time at room temperature, heating and cooling rate depend on the size and thickness of the parts.

Packaging	
RAKU® TOOL PR-3654	25 kg
RAKU® TOOL PH-3908	20 kg

Storage

Original containers should be kept tightly sealed and stored at ambient temperatures (15°C to 30°C). If properly stored the products have the shelf-life indicated on the product label. Partly used containers should always be sealed appropriately and used up as soon as possible.

Handling precautions

Good workplace ventilation is to be ensured during processing. At the same time, the employer’s liability insurance association’s industrial hygiene safety regulations regarding the handling of reaction resins and their hardeners are to be observed. Please take heed of the appropriate safety data sheets.

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