

# Propower Polyurethane Resin



## Description:

PPC189 is a flexible, two-part polyurethane resin that has a low viscosity and low embedment stress. The resin has been developed for encapsulation of delicate components requiring environmental protection in harsh damp conditions. The material may be supplied in Kit Twinpack and Bulk form.

The standard colour is translucent amber but other colours are available on request.

## Features:

- Low mixed viscosity
- Fast curing
- Low embedment stress
- Low water absorption
- Excellent electrical insulation characteristics
- Non-toxic
- RoHS & WEEE Compliant

## Specifications:

Property	Mixed
	PPC189
Colour	Amber
Specific Gravity g/ml	0.95
Viscosity m.Pa.s @ 25°C	12000
Mix Ratio by Volume	4.0: 1
Mix Ratio by Weight	3.6: 1
Usable Life (100g @ 25°C)	6 minutes
No Flow Gel Time (100g @ 25°C)	14 minutes

## Approvals:

RoHS compliant	Yes
UL94-V0	No
REACH (SVHC concentration)	0%

## Cure Schedule:

Minimum cure	Full cure
24 hours @ 20°C	1 week
4 hours @ 60°C	4 hours
2 hour @ 80°C	2 hours

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The above are typical values and will vary depending on the cured mass and application.  
Hotter temperatures may be used for faster cure but will result in higher post cure shrinkage and higher cure exotherm.  
Experimentation and testing is suggested to avoid side effects.  
For maximum properties, a post cure may be required.

## Typical Properties:

Peak Exotherm (250g @ 20°C)	45
Shrinkage % (volume)	0.2
Thermal conductivity	0.22 W/mK
Temperature range	-50 to +120°C (application & geometry dependent)
Dielectric Strength	18 kV/mm
Volume Resistivity	1014 ohm-mm
Shore A Hardness	15
Heat Deflection	Flexible
Flame retardant	No
Loss Tangent	0.02 @ 50 Hz
Permittivity	2.8 @ 50 Hz
Comparative tracking index	>600
Water Absorption	0.6% (30 days @ 25°C)
Elongation at break	~75%

## Packaging:

PPC189 is available in	Bulk, Twinpacks & kits
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## Availability:

Available through

## Twinpacks:

Twinpacks are pre-weighed resin and hardener components contained in a tough flexible film, separated by a removable clip and rail. Once the clip and rail is removed the resin and hardener is thoroughly mixed within the bag and is immediately ready for use. Mixing will normally take ~ 3 minutes for PPC189 due to the low viscosity; but pay special attention to the corners. Twinpacks are ideal for small to medium production runs, prototyping and on-site or field use. The twinpack weight/volume may also be tailored to a specific size on request.

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## Bulk Material:

PPC189 is an unfilled system and therefore sedimentation will not occur.

Under cold conditions i.e. below 15°C the hardener may crystallise. Heating to 60°C and stirring may recover this until the material is clear.

Avoid breathing vapours produced by this process.

The bulk resin and hardener materials can be dispensed from suitable dispensing machinery and details that can be provided on request.

## Kits:

Resin and hardener can be packed in separate containers in the correct ratio to form a simple kit. Simply pouring the hardener into the resin can that is then used as the mixing vessel effects mixing. It is of paramount importance to ensure that there is complete transfer of the hardener to the resin and that the two components are effectively and completely mixed before use..

## Note:

Incomplete mixing will be characterised by erratic or even partially incomplete curing of material even after extended time periods.

## Cleaning:

All equipment should be cleaned before the compound has hardened by using a suitable non-flammable cleaning agent.

## Storage and Shelf Life:

Material stored in the original unopened containers under cool dry condition between 10 and 25°C will have a shelf life of at least one-year.

Once used the containers must be kept sealed to prevent effects from water, air or contaminants.

## Health and Safety:

Polyurethane resin systems may cause sensitisation by skin contact or inhalation may be corrosive, harmful or toxic.

It is therefore strongly recommended that skin and eye contact is avoided by the use of appropriate personal protective equipment such as gloves, safety glasses or goggles and overalls. Wash any contamination from the skin immediately and thoroughly and do not eat, smoke or drink in the working vicinity.

Under normal working conditions a good source of ventilation is adequate, however if the material is heated, or where vapour levels are likely to exceed the occupational exposure limits appropriate respiratory protection must be worn.

Local exhaust ventilation (LEV) may be required especially for curing ovens or where large volumes of material are curing.

## Part Number Table

Description	Part Number
Polyurethane Resin	PPC189

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