

PU23970 PEARL

Two-part high hardness, room temperature curing polyurethane resin

Application

- Encapsulation of LED arrays
- Lighting equipment
- High quality castings

Key Properties

- Excellent long term UV stability
- Scratch and mark resistant
- High mechanical strength
- Easy to mix and process

Description

- Basic Two-component polyurethane system
- Resin PU23970 PEARL Part A
- Hardener PU23970 PEARL Part B

Physical Data (approx. – values)

	Resin	Hardener	Mixed
Colour	Clear	Clear	Opaque
Specific Gravity	1.07	1.15	1.11
Viscosity (mPas) @ 25°C	700	800	1000

Cure Schedule (150ml sample)

Temperature	Working Life (minutes)	Gel Time (minutes)	Light Handling (hours)	Full Cure (hours)
RT	30	40	24	48
40°C	-	-	12	24
60°C	-	-	6	12

* RT is defined as 20-25°C

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 – Contact our technical service department for advice.

Processing

Mix ratio by weight 0.99:1
Mix ratio by volume 1.00:1

Approvals

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

Typical Properties

Test	Result	Unit
Tack Free (150g @ 20°C)	60	minutes
Water Absorption (30 days @25°C)	0.87	%
Hardness	60-55	Shore D
Operating Temperature	- 55 to + 120	°C - (application & geometry dependent)
Thermal Conductivity	0.25	W/mK
Tensile Strength	16	MPa
Elongation at Break	5-10	%
Compressive Yield Strength	20	MPa
Coefficient of Linear Expansion	60-80	pp/m°C
Volume Resistivity	< 13 ¹⁰	ohm.cm
Surface Resistivity	< 14 ¹⁰	ohm
Electric Strength	20	kV/mm
Refractive Index	1.47-1.48	

Packaging

PU23970 PEARL is available in Bulk, Kits, Sets, Twinpacks and cartridges

Availability

Available through sales@silicone-solutions.co.uk

Cartridge Mixing Part Numbers

Available on request	

It is essential for best results that the cartridge is 'balanced' before use to ensure correct mixing. Loading the cartridge into the gun before attaching the mixer element and pumping the gun to push a small amount of the contents forward will achieve this. Wipe the excess from the cartridge tip and add the static mixer. The cartridge is now ready for use.

Twinpacks Part Numbers

Available on request	

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 ~ 2 minutes due to the 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.

Bulk Materials Part Numbers

Available on request	

Both resin and hardener are supplied in 5kg, 25kg and 200ltr drums and fully evacuated and ready for use. Care should be taken to ensure when mixing the resins air is not entrained in the mixture. If this is unavoidable the mixed resin and hardener should be re-evacuated before dispensing.

Kits and Sets Part Numbers

Available on request	

Kits and Sets are provided in separate containers to the correct ratio. In Kit form, pour the hardener into the larger resin container and use it as a mixing vessel. Stir well using an appropriate mixer until homogeneous.

Note: Incomplete mixing will be characterised by erratic or partially incomplete cure even after extended time periods.

Cleaning

All equipment contaminated with mixed material should be cleaned before the material has hardened. TS130 is a suitable non-flammable cleaning agent, although other solvents may be found suitable. TS130 will also remove cured material provided it is allowed to soak for a number of hours.

Storage and Shelf Life

Material stored in the original unopened containers under cool dry condition between 15° and 25°C will have a shelf life of at least 12 months.

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 using 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. The above is given as a guide only; please refer to PU23970 PEARL Health and Safety data or our Technical Service Department for individual/specific advice.

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