



Technical Data Sheet
Art. No. (5741111018)

Polycraft Opticast 1000

Two component, Mercury free,
Waterclear casting system

| | | | | | | |
|------------------------------------------|-------------------------------------|--------------------------------|--------------|-----------|--------------------------------------------------------------------------------------------|-----------------------------------------------------|
| A : B 100 : 120 (By weight) | 8-10 Minutes (At 25°C) | 60 Mins (At 25°C) | Water Clear | Shore D77 |  (20°C) | 1 kg by weight equals approx. 840ML in Volume |
| Mix Ratio | Pot Life | Demould Time | Cured Colour | Hardness | Working Temperature | Approximate Density |

Key Features

- Low Viscosity
- Easy Mixing
- Mercury Free
- Good Potlife
- High Strength
- Easily Pigmented
- Highly Polishable
- UV Stable

Technical Overview

| Properties | Component | Value |
|-----------------------------|-----------|--------------|
| Material | A | Polyol |
| | B | Isocyanate |
| | A+B Mix | Polyurethane |
| Colour | A | Clear Liquid |
| | B | Clear Liquid |
| Viscosity (mPas) @25°C | A | 300 - 500 |
| | B | 100 - 150 |
| | A+B Mix | 100 - 300 |
| Density 20°C g/cm3 | A | 1.25 - 1.30 |
| | B | 1.08 - 1.13 |
| | A+B Mix | 1.16 - 1.21 |
| Pot Life (Min.) 200g Mix | A+B Mix | 8 - 10 |
| Demould Time (mins) | A+B Mix | 60 |

| Properties | Component | Value |
|---------------------|-----------|-------------|
| Hardness | Shore D | 75 - 80 |
| Linear Shrinkage | % | <0.4 |
| Tensile Strength | MPa | 60 - 64 |
| Elongation at break | % | 4.5 - 5.5 |
| Tensile Modulus | MPa | 1500 - 1800 |
| Flexural Strength | MPa | 95 - 100 |
| Flexural Modulus | MPa | 2150 - 2450 |

| Cure Schedule | Standard | Unit | (Tg) |
|------------------|----------|------|---------|
| 7 Day Room Temp | DMA | °C | 46 - 50 |
| 3 hours @ 80°C | DMA | °C | 58 - 62 |
| 16 hours @ 100°C | DMA | °C | 86 - 90 |

Measure / Mix

Before use, ensure that parts A & B are at room temperature (20°C). Surface and air temperatures should be above 20°C during application and for the entire curing period. At higher or lower temperatures pot-life and cure time can be significantly affected.

Shake both Part A & Part B in their securely closed containers thoroughly before dispensing into your mixing vessel. Part A & Part B are mixed by hand using a ratio of 100A:120B by weight. (Example 100g A : 120g B). Mixing accuracy is important as imprecise ratios will affect the cure.

Scrape the sides and bottom of the mixing vessel multiple times to ensure adequate mixing taking care not to splash or spill. Poor mixing will result in defects in the cast.

Plastic mixing vessels / mixing utensils are recommended. Wood or paper equipment can introduce moisture into the resin system and therefore not recommended.

Key Information

Casting Thickness

2mm - 15mm recommended as a safe limit. Slightly thicker casting are possible but may overheat which can lead to a variety of issues including discolouration and excessive shrinkage. It is recommended to proceed with caution and test material before undertaking the real application.

Moisture

These materials are moisture sensitive and will absorb atmospheric moisture which can cause a variety of curing issues. Ensure containers are sealed immediately after use. To prolong the life of unused material consider a dry gas blanket spray to remove moisture from containers.

Cure Times

The cure rate of Opticast 1000 is affected by temperature, the product must be cast at temperatures greater than 20°C to optimise the cure, especially if the casting has thin sections. We advise to use preheated moulds for best results. To achieve optimum properties, a post cure is recommended. A typical post cure schedule would be to heat the material for 3 hours at 80°C. In order to achieve maximum thermal performance an extended post cure of 16 hours at 100°C is advised. To prevent any distortion during the post cure cycle the unit should be placed on a conforming mould. When post-curing is complete, let the unit cool down slowly to room temperature to prevent warping or distortion of the part.

Mould compatibility

Before use ensure that the master model from which the mould is made has the exact finish that is required in the cast or finished units, i.e. for optimum clarity polish the master model to a very high sheen. Ensure that the mould is clean and dry. If the mould is made from metal or resin, use a release agent such as the Macsil. For flexible moulds we recommend an addition cure silicone rubber. Condensation cured silicone rubber should not be used with OptiCast 1000. It may be necessary to preheat the mould to 40°C to prevent shrinkage at the corners and sides of the casting.

Safety Precautions

Safety First! Goggles, gloves and appropriate mask whilst working in a well ventilated area is highly recommended. Always read the SDS before use.

Potlife / Working Time

Once Part A & Part B have been combined and mixed thoroughly you will have approximately 8 to 10 minutes before the resin begins to set. Once the material begins to set it will quickly become unusable. Mix only what you can use within the time frame. Bulk mix quantities may reduce potlife significantly, Please reference technical overview for mix quantities and time value.

Product Overview

Polycraft Opticast 1000 is a mercury free optically clear UV stable polyurethane resin system. The requirement of a vacuum chamber / pressure chamber are required as it can otherwise be quite difficult to achieve a bubble free casting without the use of equipment.