

# Polycraft

# FR4



## Fire Retardant Potting / Encapsulation Epoxy Resin System

Revision Date: 03/01/25

|                        |                           |                   |              |            |                        |   |
|------------------------|---------------------------|-------------------|--------------|------------|------------------------|---|
| <b>9.75 : 1</b>        | <b>50-70<br/>Mins</b>     | <b>24<br/>Hrs</b> | <b>Black</b> | <b>85D</b> | <b>25°C</b>            | 1.63kg in weight<br>equals approx. 1 litre<br>in volume |
| Mix Ratio<br>By Volume | Pot Life<br>(500g @ 20°C) | Demould<br>Time   | Cured Colour | Hardness   | Working<br>Temperature | Density   |

### Overview

Polycraft FR4 pottign epoxy has been formulated for good chemical resistance exhibiting excellent electrical characteristics (RoHS Compliant) and high levels of flame retardancy (UL94-V0 Certified). Polycraft FR4 produces a low exotherm during cure meaning it is suitable for small to large volume castings with minimal shrinkage. Ideal as a potting & encapsulation compound. As with all products, we stress that customers should perform initial tests to ensure suitability for their project and requirements.

### Mixing

All mixing and curing should ideally be done at room temperature. Thoroughly mix the resin component prior to adding hardener as material can settle during storage. Ensure that you weigh the correct amounts of resin and hardener into a mixing container and mix the contents thoroughly before use.

### Potlife / Casting Depth

**\*\*Warning:\*\*** The potlife and other properties in this datasheet are based on standard testing conditions. We recommend doing initial tests to make sure the product fits your project needs before moving on to full production.

### Curing Times

Polycraft FR4 will reach a full cure over 7 days at 25°C. This can be reduced to 2 hours by post curing at 60°C.

### Storage / Shelflife

Polycraft FR4 should be kept in dark storage between 18°C and 25°C. Under these conditions, shelf-life in the original unopened containers is six months from the date of purchase.

### Health & Safety

Before use please read product labels, technical sheets and safety data sheets and ensure you have adequate understanding of the safety precautions and directions before using the materials.

|                                       |                      |   |
|---------------------------------------|----------------------|---|
| Material                              | Resin Hardener       | Epoxy Polyamine                               |
| Colour                                | Resin Hardener       | Black Amber                                   |
| Viscosity                             | Resin Hardener Mixed | 120000 - 160000<br>100 - 200<br>25000 - 35000 |
| Density @25°C (g/cm <sup>3</sup> )    | Resin Hardener Mixed | 1.75 ± 0.05<br>0.96 ± 0.05<br>1.58 - 1.68     |
| Mix Ratio                             | By Weight            | 9.75 : Resin<br>1 : Hardener                  |
| Potlife (200g @25°C)                  | Mins                 | 50-70   |
| Hardness                              | Shore D              | 85  |
| Thermal Conductivity                  | W / m/°C             | 0.58  |
| Coefficient of thermal expansion      | ppm /°C              | 33  |
| Heat Deflection Temperature           | Celsius              | 60  |
| Maximum Operating Temperature         | Celsius              | 130°(Continuous)<br>150°(Short Term)          |
| Minimum Operating Temperature         | Celsius              | -40°  |
| Tensile Strength                      | mPa                  | 60  |
| Compressive Strength                  | mPa                  | 80  |
| Water Absorption @ 25°C (over 7 Days) | Mass                 | 0.37%   |
| Flammability Testing                  | -                    | UL94 V-0                                      |
| Electric Strength                     | kV/cm                | 150   |
| Loss Tangent @25°C                    | 50hz                 | 0.037   |
| Permittivity @ 25°C                   | 50hz                 | 4.7   |
| Volume Resistivity                    | ohm-cm               | 1015  |
| Comparative Tracking Index            | Volts                | >850  |
| Limitig Oxygen Index(LOI)             | %                    | 36  |

\*Data based on room temperature cure for 7 days, datashould not be used for specifications and should not be considered minimum or maximum\*