

BC-600 Optical Cement

BC-600 Optical Cement is a clear epoxy resin formulated specifically for making optical joints with plastic scintillators. It possesses ideal optical properties for this application. Transmittance values of a 125 micron (.005”) thick layer of the cured cement are as follows:

Wavelength	Transmission
above 400nm	>98%
340nm-400nm	>95%
308nm-340nm	>90%

BC-600 is a two-part, low viscosity adhesive that can be cured at room temperature. It has a refractive index close to that of SGCD plastic scintillators and is ideal for optically bonding them to acrylic light guides or optical windows. (Refractive indices of SGCD plastic scintillators and acrylic plastic are respectively 1.59 and 1.49). *It is not recommended for coupling scintillators to photomultiplier tubes.*

BC-600 has a shelf life of at least six months when stored in a closed, well-sealed container at room temperatures below 25°C. It is supplied in standard kits of 250 ml and is also available in larger quantities.

Application –

BC-600 should be stored in a cool place or in a refrigerator. It has a shelf life of about six months. Avoid exposure to moisture. Before using, the resin should be left sealed until it attains room temperature. If the resin has solidified, place the can in an oven at about 50°C until the resin becomes clear.

To 100 parts by weight of the resin add 28 parts by weight of the Hardener supplied. Mix thoroughly in either a glass beaker or, preferably, a disposable paper or plastic con-

tainer. Air bubbles can be removed by vacuum techniques (brief exposure) or by setting the mixture aside for 15-20 minutes to allow the bubbles to rise to the surface.

Apply the mixed cement to both surfaces to be joined. If left too long, the cement will begin to set. On warm days the pot life of the mixed cement may be as short as 30 minutes. At room temperature (20°C) the resin takes 3 to 4 hours to set and 24 hours to harden, although it takes several days to achieve maximum hardness.

General Technical Data –

Refractive Index	1.56
Bond Strength	>1800psi>125 (kg/cm ²)
Coefficient of Linear Expansion 7.2x10 ⁻⁵ cm/°C
Specific Gravity	1.18
Volume Resistivity	10 ¹⁴ ohm-cm
Mixed Viscosity	800 cps

Note: Coefficient of Linear Thermal Expansion of Saint-Gobain Crystals & Detectors plastic scintillators is typically 7.8 x 10⁻⁵ below 67°C.



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Preparation of Surfaces –

The surfaces to be joined should be lightly sanded with No. 400 Silicon Carbide paper, cleaned with methanol and dried. Adjacent surfaces may be protected from excess resin with adhesive tape.