

BC-440, BC-440M, BC-448, BC-448M

Premium Plastic Scintillators

The BC-440 series are made from a specially modified polyvinyltoluene base and are intended to bring the premium scintillator performance characteristics of BC-408 and BC-412 to high temperature environments. This family of scintillators provides the high temperature characteristics of polystyrene based scintillators without the diminished light yield associated with such formulas. The base formulas have a softening point of 99°C, while formulas with the “M” designation are crosslinked and they are designed for use at temperatures up to 150°C. At high temperatures the “M” series will soften and become rubber-like, but retain their shape. Some deformation may occur if the scintillators are subjected to external forces. When the scintillators are intended for use at temperatures above 80°C for long periods of time, they should be protected from air to prevent oxidation.

	BC-440	BC-440M	BC-448	BC-448M
Scintillation Properties				
Light Output (% Anthracene)	60	60	64	64
Decay Time (ns)	3.3	3.3	2.1	2.1
Wavelength of Max Emission (nm)	434	434	425	425
Bulk attenuation length (cm)	>400	>400	380	380
Mechanical Properties				
Softening point °C	99	See note above	99	See note above
Tensile Strength (MPa ±4)	34		34	
Flexural Strength (MPa ±6)	50		50	
Tensile Modulus (MPa ±300)	2600		2600	
Atomic Composition				
Number of H atoms per cc, x 10 ²²	5.23	5.23	5.23	5.23
Number of C atoms per cc, x 10 ²²	4.74	4.74	4.74	4.74
Number of electrons per cc, x 10 ²³	3.37	3.37	3.37	3.37

General Technical Data -

Base	Polyvinyltoluene
Density [g/cc]	1.03
Expansion Coefficient (per°C, <67°C)	7.4X10 ⁻⁵
Refractive index	1.58
Radiation Length (cm)	43

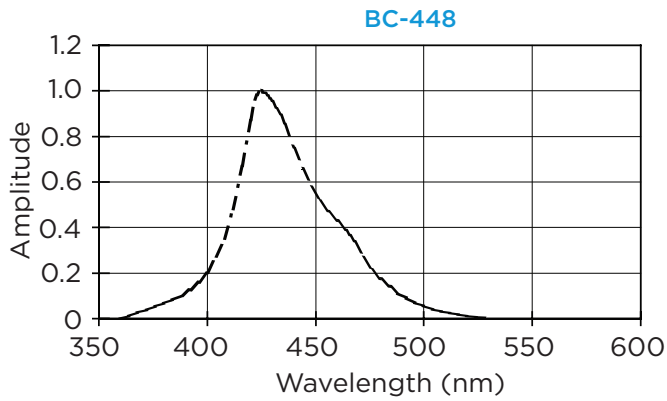
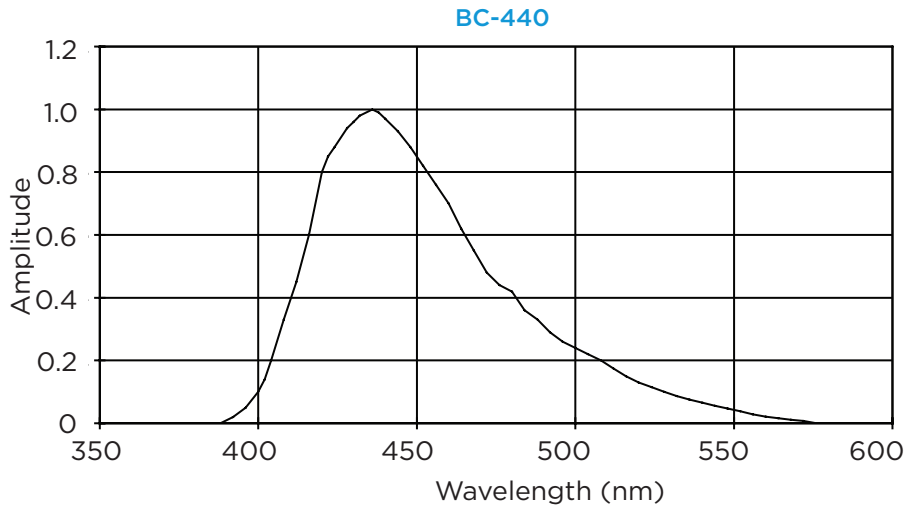
General Handling -

The scintillators are soluble in aromatic solvents, chlorine, acetone, etc. They are insoluble in water, dilute acids & alkalis, lower alcohols, silicone fluid, grease. Scintillators with the “M” designation are more resistant to aromatic solvents, but some swelling of the base and leeching of the scintillation solutes are likely.

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Emission Spectra



Saint-Gobain Crystals

www.crystals.saint-gobain.com

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