BC-400, BC-404, BC-408, BC-412, BC-416
Premium Plastic Scintillators

The premium plastic scintillators described in this data sheet include those with the highest light output, as well as the most economical (BC-416). The chart below will direct you to the scintillator suitable for your energy application.

### General Technical Data
- **Base**: Polyvinyltoluene
- **Density (g/cc)**: 1.032 g/cc
- **Refractive Index**: 1.58
- **Expansion Coefficient (per °C, <67°C)**: 7.8 x 10^-5
- **Softening Point**: 70°C
- **Vapor Pressure**: May be used in vacuum
- **Solubility**: Soluble in aromatic solvents, chlorinated solvents, acetone, etc. Unaffected by water, dilute acids, lower alcohols, alkalis and pure silicone fluids or grease.
- **Light Output**: At +60°C = 95% of that at +20°C. Independent of temperature from -60°C to +20°C

### Radiation Detected
- <100 keV X-rays
- 100 keV to 5 MeV gamma rays
- >5 MeV gamma rays
- Fast neutrons
- Alphas, betas
- Charged particles, cosmic rays, muons, protons, etc.

### Principal Uses/Applications
- **Scintillation Properties**
- **Atomic Composition**
- **Radiation Detected**
- **Solubility**
- **Light Output**: At +60°C = 95% of that at +20°C. Independent of temperature from -60°C to +20°C

### Scintillation Properties
- **Light Output, % Anthracene**: 65 BC-400, 68 BC-404, 64 BC-408, 60 BC-412, 38 BC-416
- **Rise Time, ns**: 0.9 BC-400, 0.7 BC-404, 0.9 BC-408, 1.0 BC-412
- **Decay Time (ns)**: 4.0 BC-412, 3.3 BC-412
- **Pulse Width, FWHM, ns**: 4.0 BC-412
- **Light Attenuation Length, cm**: 160 BC-400, 210 BC-408, 210 BC-412, 210 BC-416
- **Bulk Light Attenuation Length, cm**: 250 BC-400, 380 BC-408, 400 BC-412, 400 BC-416

### Atomic Composition
- **No. H Atoms per cc (x10^{22})**: 5.23 BC-400, 5.21 BC-404, 5.23 BC-408, 5.23 BC-412, 5.25 BC-416
- **No. C Atoms per cc (x10^{22})**: 4.74 BC-400, 4.74 BC-404, 4.74 BC-408, 4.74 BC-412, 4.73 BC-416
- **Ratio H:C Atoms**: 1.103 BC-400, 1.100 BC-404, 1.104 BC-408, 1.104 BC-412, 1.110 BC-416
- **No. of Electrons per cc (x10^{23})**: 3.37 BC-400, 3.37 BC-404, 3.37 BC-408, 3.37 BC-412, 3.37 BC-416

*The typical 1/e attenuation length of a 1x20x200 cm cast sheet with edges polished as measured with a bialkali photomultiplier tube coupled to one end*
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