

BC-509

Hydrogen-Free Liquid Scintillator

This liquid scintillator is nearly free of hydrogen atoms, as it is formulated with a fluorinated aromatic solvent base. This makes it relatively insensitive to neutron flux. The insensitivity can be further increased by using pulse shape discrimination techniques.

BC-509 neutron-insensitive scintillator is also an effective neutron detector where it is desirable to avoid the thermalizing properties of standard hydrogenous organic scintillators. Furthermore, this fluorocarbon-based liquid scintillator has dosimetric potential, being independent of gamma ray energy within +/-10% over the range from 50 keV to 10 MeV while maintaining sensitivity down to a few mR/h (microrentgens/hour).

Scintillation Properties –

Light Output, %Anthracene	20
Wavelength of Maximum Emission, nm	425
Decay Time, ns	3.1% anthracene

Atomic Composition –

No. of H Atoms per cc	0.011×10^{22}
No. of C Atoms per cc	3.16×10^{22}
No. of F Atoms per cc	3.15×10^{22}
No. of Electrons per cc	4.73×10^{23}
Atomic Percent of H Atoms	0.18

General Technical Data –

Density (20°C)	1.61g/cc
Refractive Index	1.38
Flash Point	10°C
Boiling Point	80°C
Expansion Coefficient	0.1%/deg.C

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Emission Spectrum –

