

EJ-331 and EJ-335 GADOLINIUM LOADED LIQUID SCINTILLATORS

The principal applications of these liquid scintillators are neutron spectrometry and neutrino studies. The neutron capture reaction in gadolinium produces a multiplicity of beta particles with a total energy of about 8 MeV. Delayed coincidence and pulse shape discrimination techniques are commonly employed with these liquids. Also, because they are often employed in large volumes both are formulated with high flash point solvents. The standard gadolinium loading is 0.5% by weight in EJ-331.

EJ-331, based on a fully aromatic solvent, provides the maximum light output consistent with long-term stability. It is also available with gadolinium loadings up to 1.5%. EJ-335 contains mineral oil substituted for some of the aromatic solvent for purposes of higher hydrogen content and higher flash point for use in very large tanks. In this case, 0.25% gadolinium loading is maximum, and 0.1% loading is common for very quantities.

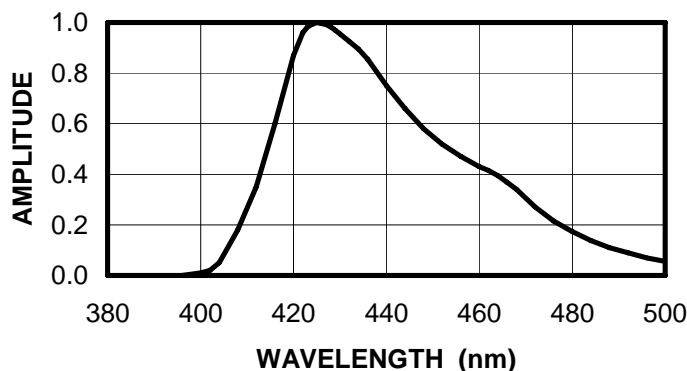
PROPERTIES

	EJ-331	EJ-335
Gadolinium content:	0.5% w/w	0.25% w/w
Specific Gravity:	0.90	0.89
Light Output (% of Anthracene)	68%	55%
Wavelength of Maximum Emission	424 nm	424 nm
Bulk Light Attenuation Length:	>4 meters	>4.5 meters
Refractive Index	1.50	1.49
Flash Point	44°C (111°F)	64°C (147°F)

ATOMIC COMPOSITION

No. of H Atoms per cm³	5.27×10^{22}	6.16×10^{22}
No. of C Atoms per cm³	4.00×10^{22}	3.93×10^{22}
H:C. Ratio	1.32	1.57
No. of Electrons per cm³	29.8×10^{22}	30.6×10^{22}

EJ-331 & EJ-335 EMISSION SPECTRA



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