EJ-244 and EJ-248 PLASTIC SCINTILLATORS
For Use at Elevated Temperatures

These plastic scintillators are respective analogs of the popular EJ-208 and EJ-200, possessing their long optical attenuation length and overall superior scintillation properties while being able to be used at somewhat higher temperatures. While both EJ-208 and EJ-200 have softening points near 70^{O}C, these new plastics have softening temperatures at 99^{O}C. These higher temperature characteristics have been achieved by using a specially modified variant of the conventional PVT base plastic. Hence, they have the temperature characteristic of polystyrene-based plastics while not suffering the lower scintillation efficiencies associated with polystyrene. These plastics are also mechanically more robust, more easily machined and resistant to scratching than the conventional PVT-based materials.

Recognizing that these plastics are intended for higher temperature applications, we have additionally fortified them against the accelerated yellowing that occurs with any organic polymer when operated at elevated temperatures. However, for continued use at elevated temperatures, extra care should be taken to eliminate or minimize the presence of air in the scintillator housings.

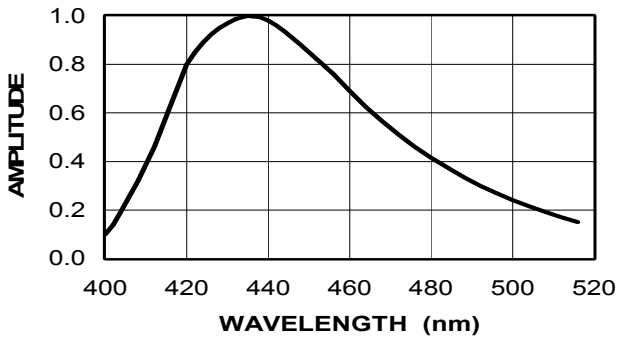
Physical and Scintillation Constants	**EJ-244**	**EJ-248**
Light Output, % Anthracene	56	60
Scintillation Efficiency, photons/1 MeV e^-	8,600	9,200
Wavelength of Max Emission (nm)	434	425
Rise Time (ns)	1.0	0.9
Decay Time (ns)	3.3	2.1
Pulse Width, FWHM (ns)	4.2	~2.5
No. of H Atoms per cm^3, x 10^{22}	5.18	5.18
No. of C Atoms per cm^3, x 10^{22}	4.69	4.69
No. of Electrons per cm^3, x 10^{23}	3.34	3.34
Density, g/cc:	1.02	1.02

Polymer Base: …… Polyvinyltoluene
Refractive Index: ……1.58
Vapor Pressure: …….. Is vacuum-compatible
Coefficient of Linear
Expansion: …… 7.4 x 10^{-5} below +70°C

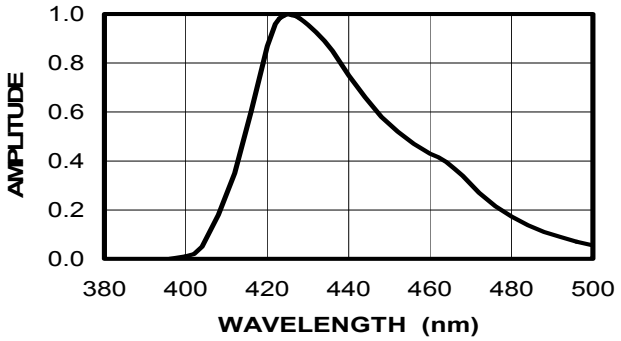
Light Output vs. Temperature:
At +60^{o}C, L.O. = 95% of that at +20^{o}C
At +90^{o}C, L.O. = 87% of that at +20^{o}C
No change from +20^{o}C to -60^{o}C

Chemical Compatibility: Is attacked by aromatic solvents, chlorinated solvents, ketones, solvent bonding cements, etc. It is stable in water, dilute acids and alkalis, lower alcohols and silicone greases. It is safe to use most epoxies and "super glues" with EJ-200.

EJ-244 EMISSION SPECTRUM



EJ-248 EMISSION SPECTRUM



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