GENERAL PURPOSE PLASTIC SCINTILLATOR
EJ-200, EJ-204, EJ-208, EJ-212

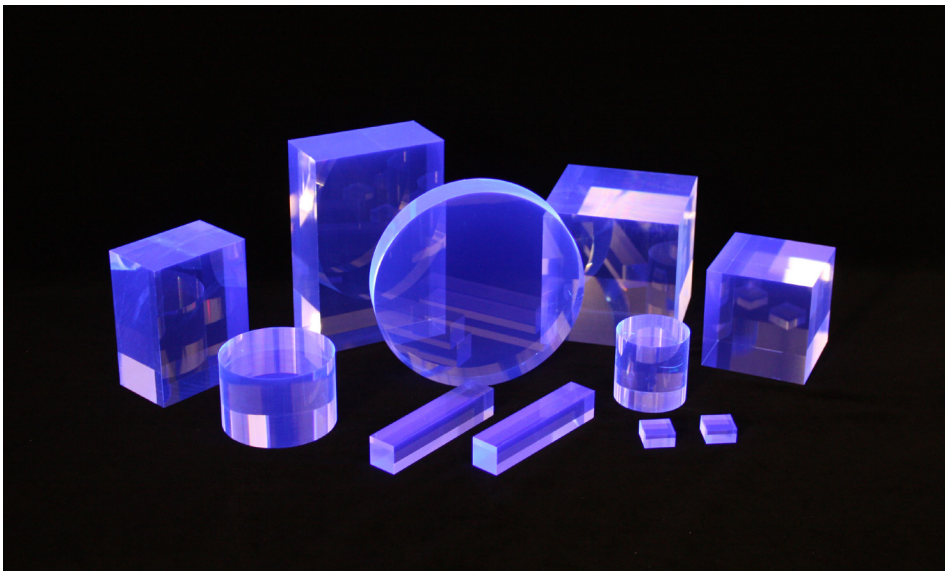
These scintillators have the properties of long optical attenuation length and fast timing with an emission spectrum well matched to common photomultiplier tubes.

EJ-200 combines the two important properties of long optical attenuation length and fast timing which make it particularly useful for time-of-flight systems using scintillators greater than one meter long. It is the detector of choice for many industrial applications, such as gauging and environmental protection, where high sensitivity and signal uniformity are critical operating requirements.

EJ-204 has the highest scintillation efficiency of any of Eljen's plastic scintillators, along with the combination of high speed and good attenuation length. It is particularly well suited for high-performance detector systems for nuclear and high-energy physics research. Its emission wavelength near 400 nm couples ideally with bialkali photomultiplier tubes while still being long enough to be effectively used with UVT light guides.

EJ-208 possesses the longest wavelength emission of commonly available blue scintillators and hence should be considered for applications requiring complex or extended light guides. The long emission spectrum provides additional resistance to radiation damage of which the most common symptom is increased optical attenuation at short wavelengths. It is intended specifically for use in large sizes where timing is of secondary importance and uniformity of light collection is paramount.

EJ-212 is a scintillator specially formulated for use in thin sheets (thickness less than 5 mm), but it can also be used in thick cast sheet, rods and ingots. Applications include industrial and health physics measurement of alpha, beta, gamma, and neutron radiation as well as in numerous medical instruments and scientific research ranging from low background shields in nuclear physics to space-borne astrophysics systems. It is best utilized in sizes up to 100 cm long. EJ-200 should be considered for longer pieces.



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PROPERTIES	EJ-200	EJ-204	EJ-208	EJ-212
Light Output (% Anthracene)	64	68	60	65
Scintillation Efficiency (photons/1 MeV e^-)	10,000	10,400	9,200	10,000
Wavelength of Maximum Emission (nm)	425	408	435	423
Light Attenuation Length (cm)	380	160	400	250
Rise Time (ns)	0.9	0.7	1.0	0.9
Decay Time (ns)	2.1	1.8	3.3	2.4
Pulse Width, FWHM (ns)	2.5	2.2	4.2	2.7
H Atoms per cm³ ($\times 10^{22}$)	5.17	5.15	5.17	5.17
C Atoms per cm³ ($\times 10^{22}$)	4.69	4.68	4.69	4.69
Electrons per cm³ ($\times 10^{23}$)	3.33	3.33	3.33	3.33
Density (g/cm^3)	1.023	1.023	1.023	1.023
Polymer Base	Polyvinyltoluene			
Refractive Index	1.58			
Softening Point	75°C			
Vapor Pressure	Vacuum-compatible			
Coefficient of Linear Expansion	7.8×10^{-5} below 67°C			
Temperature Range	-60°C to 60°C			
Light Output (L.O.) vs. Temperature	At 60°C, L.O. = 95% of that at 20°C No change from -60°C to 20°C			

CHEMICAL COMPATIBILITY

Attacked By: Aromatic solvents, Chlorinated solvents, Ketones, Solvent bonding cements, etc.
Stable In: Water, Dilute acids and alkalis, Lower alcohols, Silicone greases.
It is safe to use most epoxies with these scintillators.