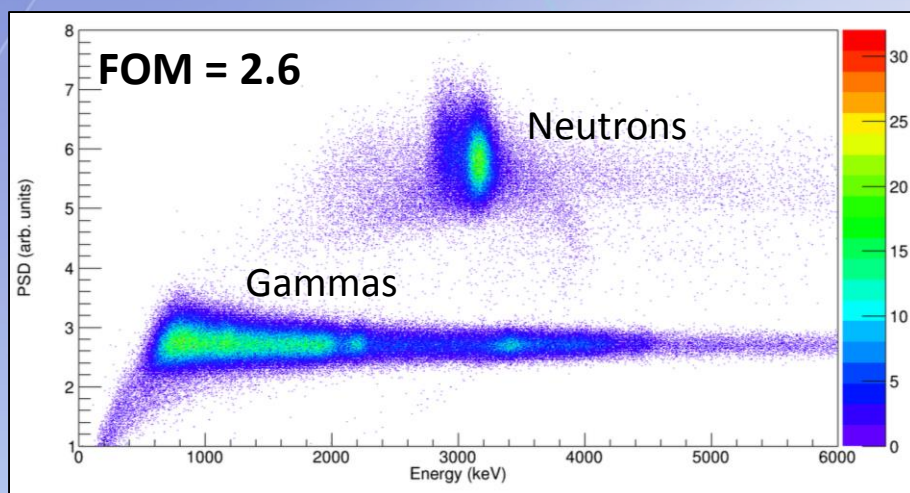
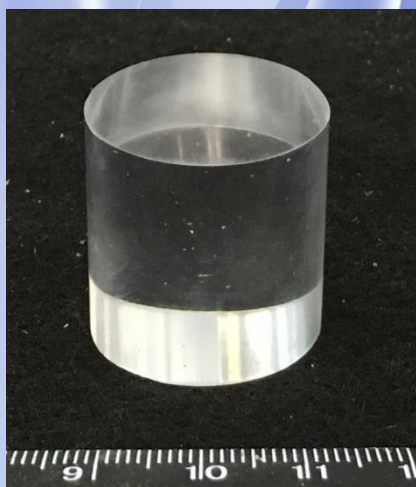


Cesium Yttrium Chloride (CLYC:Ce)

for Dual Neutron & Gamma Radiation Detection

Cesium Yttrium Chloride ($\text{Cs}_2\text{LiYCl}_6:\text{Ce}$) is an elpasolite material with excellent dual gamma and neutron detection efficiency. CLYC crystals that incorporate 95% ^6Li permit thermal neutron detection, while ^7Li enriched CLYC enables fast neutron detection. CLYC has a light yield of about 20,000 ph/MeV of gamma energy and 70,000 ph/neutron while energy resolution ranges from 4-5%. The emission of CLYC is comprised of core-valence luminescence (CVL), Ce^{3+} emission, and emission from Ce^{3+} -self-trapped exciton (STE) interaction, resulting in three decay components on the order of several ns (CVL), hundreds of ns (Ce^{3+}), and several μs (Ce^{3+} -STE). Absence of CVL under neutron excitation allows for easy discrimination between the neutron and gamma radiation. An FOM value of 2.6 was achieved using a Pu/Be neutron source.

CLYC can be used for a variety of portable detection instruments (e.g. handhelds as well as back-packs). CLYC is currently available in different geometries, with or without encapsulation. Inquire for more details.



Scintillation Light Yield	20,000 ph/MeV @ 662 keV	Density	3.3 g cm^{-3}
Energy Resolution	better than 5.0%	Crystal Structure	Cubic
Emission Range	275-450 nm	Melting Point	640°C
Peak Emission Wavelength	370 nm	Moisture Sensitivity	Hygroscopic
Figure of Merit (FOM)	2.6	Refractive Index	1.85



CapeSym, Inc.

Novel Solutions for Challenging Problems

www.capesym.com

info@capesym.com

508.653.7100