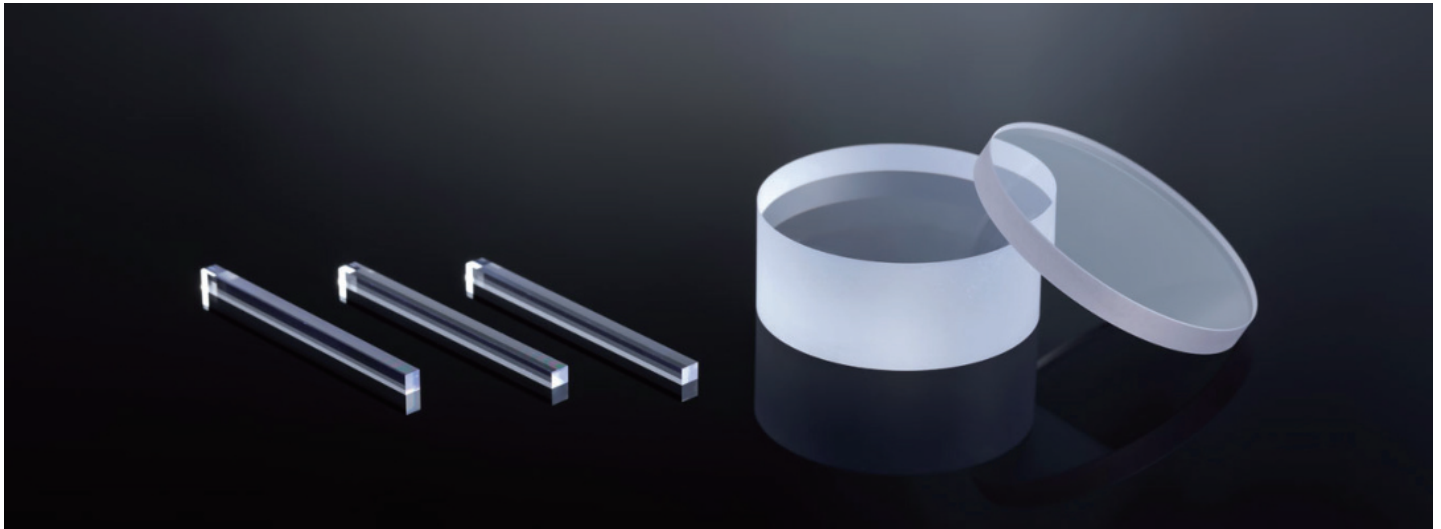


# Ce: YAP scintillator crystals



## DESCRIPTION

Ce: YAP crystal (Chemical formula Ce: YAlO<sub>3</sub>) shows stable physical and chemical properties, high thermal conductivity, and resistance to harsh operating environments. It exhibits excellent scintillating performance, such as high light yield, and fast decay time (about 27ns). The absorption peak and excitation peak of YAP crystal are mainly concentrated in 230-300nm, and the emission wavelength is in the range of 350-390nm, which matches well with the receiving sensitive wavelength range of photomultiplier tube (PMT) and silicon photodiode (PD). Ce: YAP crystals are widely used in photomultiplier tubes, photoelectric counters, scintillation screens and other devices to realize the detection of high-energy particles, such as  $\alpha$  particles,  $\beta$  rays,  $\gamma$  rays, ultraviolet rays, etc.

## FEATURES

- High density
- Stable physical and chemical properties
- Fast decay time
- High light output
- High energy resolution
- No hygrscopic & cleavage
- High temperature resistance

## APPLICATIONS

- X-ray,  $\beta$ -ray detection
- <sup>137</sup>Cs- $\gamma$  rays
- <sup>60</sup>Co- $\gamma$  rays
- Photoelectric counter
- Small animal PET
- X-Ray imaging screens

## PARAMETERS

### SCINTILLATOR PROPERTIES

Wavelength(Max. emission) (nm)	370
Wavelength range (nm)	325-425
Decay time (ns)	28
Light output (photons/MeV)	25000
Refractive index	1.95@370nm
Radiation length (cm)	2.7
Optical transmission (um)	TBA
Transmittance (%)	TBA
Reflection loss/surface (%)	TBA
Energy resolution (%)	≤ 5
Neutron Capture Cross-section (barns)	TBA
Afterglow (%)	<0.005 @6ms

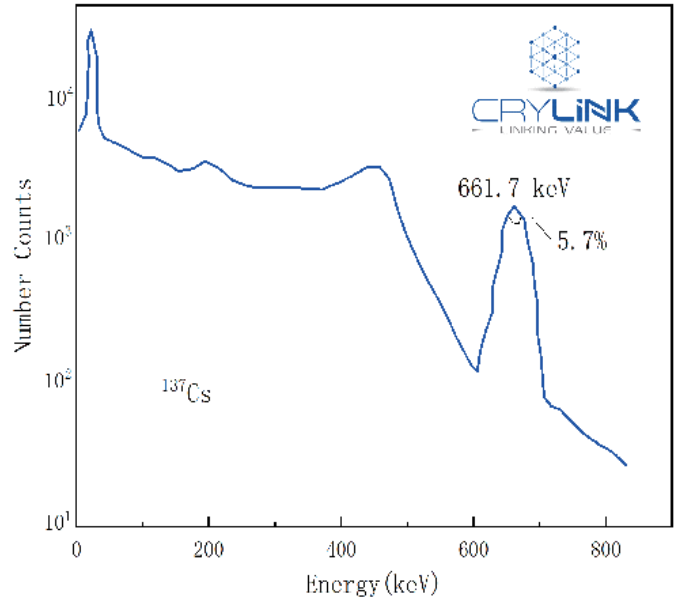


# Ce: YAP scintillator crystals

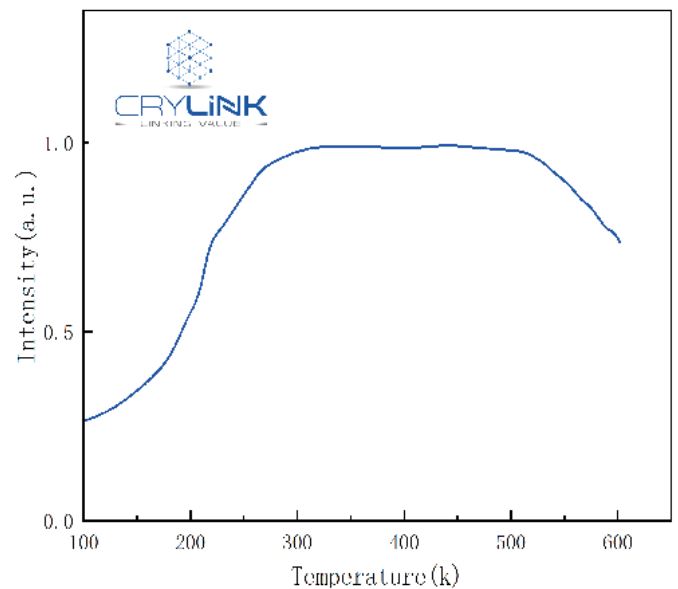
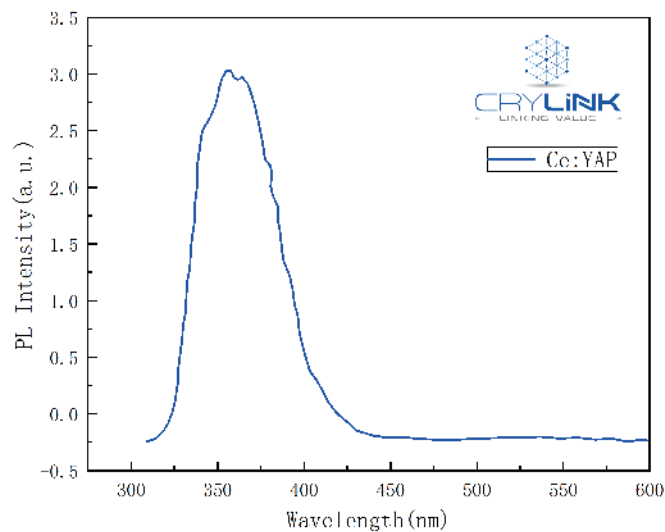
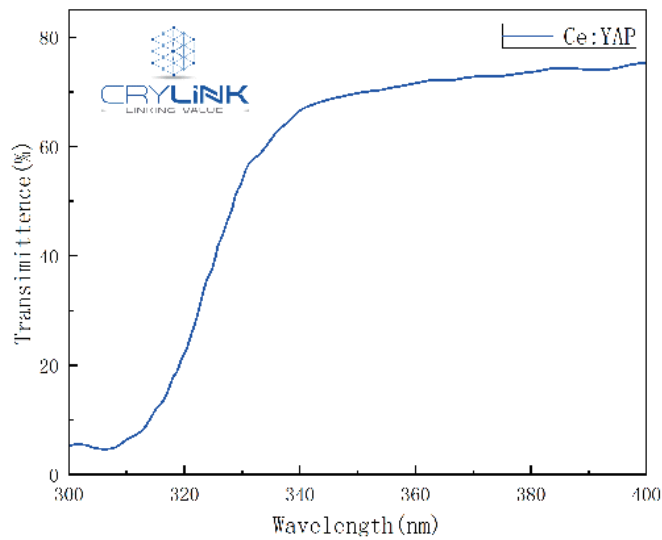
## MATERIAL PROPERTIES

Chemical formula	Ce: YAP
Density (g/cm <sup>3</sup> )	5.37
Melting point (°C)	1875
Hardness (Mho)	8.5
Hygroscopic	No
Cleavage	No
Solubility (g/100gH <sub>2</sub> O)	N/A
Thermal expansion coeff (C <sup>-1</sup> )	(4-11)*10 <sup>-6</sup>

## SPECTRA 1



Energy spectrum of 662 keV Y-rays from a <sup>137</sup>Cs source measured with Ce:YAP



The dependence of light output of Ce:YAP on temperature

