

## Inorganic scintillation materials and their most common applications

Material	Important Properties	Major Application
<b>NaI(Tl)</b>	Very high light output, good energy resolution	General scintillation counting, Health Physics, environmental monitoring, high temperature use
<b>CsI(Tl)</b>	Non-hygroscopic, rugged	Particle and high energy physics, general radiation detection, photo diode readout,
<b>CsI(Na)</b>	High light output, rugged	Geophysical, general radiation detection
<b>CsI(undoped)</b>	Fast, non-hygroscopic	Physics (calorimetry)
<b>CaF<sub>2</sub>(Eu)</b>	Low Z, high light output	β detectors, α/β phoswiches
<b>Cs<sub>2</sub>LiYCl<sub>6</sub>:Ce (CLYC)</b>	Neutron detection capability High resolution	Nuclear identifiers, Physics
<b>Cs<sub>2</sub>LiLaBr<sub>4.8</sub>Cl<sub>1.2</sub>:Ce (CLLBC)</b>	High resolution dual mode (neutron/gamma)	Nuclear identifiers, Physics
<b>CeBr<sub>3</sub></b>	Very high light output, very good energy resolution, low background	High resolution spectroscopy, low background applications
<b><sup>6</sup>LiI(Eu)</b>	High neutron cross-section, high light output	Thermal neutron detection and spectroscopy
<b>LaBr<sub>2.85</sub>Cl<sub>0.15</sub>:Ce (LBC)</b>	Bright, high resolution scintillator (La-138 background)	High resolution gamma spectroscopy
<b>SrI<sub>2</sub>(Eu)</b>	Bright, high resolution, slow	High resolution gamma Spectroscopy
<b><sup>6</sup>Li-glass</b>	High neutron cross section, non-hygroscopic	Physics, security Thermal neutron detection
<b>BaF<sub>2</sub></b>	Ultra-fast sub-ns UV emission	Positron life time studies, physics, fast timing
<b>YAP(Ce)</b>	High light output, low Z, fast	MHz-X-ray spectroscopy, synchrotron physics
<b>LYSO</b>	High density and Z, fast	Physics research, PET, High Energy Physics
<b>GAGG:Ce</b>	High density and Z, radiation hard Non hygroscopic, tuneable	Physics, rad hard requirements
<b>BGO</b>	High density and Z	Geophysical research PET, anti-Compton spectrometers.
<b>CdWO<sub>4</sub></b>	High density, low afterglow Long decay times	DC measurement of X-rays (high intensity), readout with photodiodes, Computerized Tomography (CT)
<b>PbWO<sub>4</sub></b>	Very high density and fast low afterglow	Physics research (calorimetry)