SCIONIX

Application Note

Scintillation materials and their most common applications

Material	Important Properties	Major Application
NaI(Tl)	Very high light output, good energy resolution	General scintillation counting, Health Physics, environmental monitoring, high temperature use
CsI(Tl)	Non-hygroscopic, rugged	Particle and high energy physics, general radiation detection, photo diode readout,
CsI(Na)	High light output, rugged	Geophysical, general radiation detection
CsI(undoped)	Fast, non-hygroscopic	Physics (calorimetry)
CaF_2(Eu)	Low Z, high light output	β detectors, α/β phoswiches
Cs2LiYCl6:Ce (CLYC)	Neutron detection capability High resolution	Nuclear identifiers, Physics
$LaCl_3$:Ce(0.9)	Very high light output, very good energy resolution	High resolution scintillation spectroscopy, Health Physics environmental monitoring
$CeBr_3$	Very high light output, very good energy resolution, low background	High resolution spectroscopy, low background applications
^{6}LiI(Eu)	High neutron cross-section, high light output	Thermal neutron detection and spectroscopy
SrI_2(Eu)	Bright, high resoloution scintillator	High resolution gamma Spectroscopy
^{6}Li-glass	High neutron cross section, non-hygroscopic	Physics, security
BaF_2	Ultra-fast sub-ns UV emission	Thermal neutral detection
YAP(Ce)	High light output, low Z, fast	Positron life time studies, physics, fast timing
LYSO	High density and Z, fast	MHz-X-ray spectroscopy, synchrotron physics
BGO	High density and Z	Physics research, PET, High Energy Physics
$CdWO_4$	Very high density, low afterglow Slow decay times	Particle physics, geophysical research PET, anti-Compton spectrometers.
$PbWO_4$	Fast, high density, low afterglow	DC measurement of X-rays (high intensity), readout with photodiodes, Computerized Tomography (CT)
Plastics	Fast, low density and Z high light output	Physics research (calorimetry) General counting, particle and neutron detection.

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