

CRY-019 Scintillation Material

CRY19 is a new mixed rare-earth silicate single crystal of high density featuring high light yield and short decay time. Its scintillation wavelength is about 420 nm which is preferred for PMT readout. It is a preferred choice for Gamma ray detectors.

Table of physical parameters

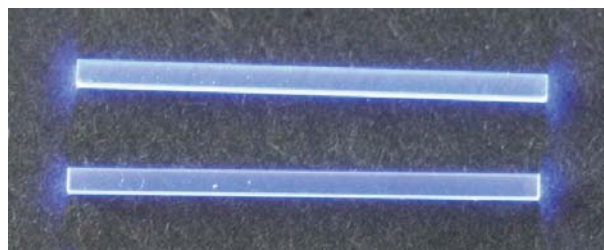
	NaI:TI	BGO	YAG:Ce	YAP:Ce	CRY-019	LuAG:Ce	CRY-018
Density [g/cm ³]	3.67	7.13	4.55	5.37	7.4	6.76	4.50
Hardness [Mho]	2	5	8.5	8.6	5.8	8.5	5.8
Index of refraction	1.85	2.15	1.82	1.95	1.82	1.84	1.79
Crystal structure	cubic	cubic	cubic	rhombic	monoclinic	cubic	monoclinic
Hygroscopic	yes	no	no	no	no	no	no
Cleavage	yes	no	no	no	yes	no	yes
Light output [% NaI:TI]	100	15 - 20	40	60	40 - 75	20	80
Emmision [nm]	415	480	550	370	415 - 420	535	425
Decay Time [ns]	230	300	70	25	46	70	45
Energy Resolution [% at 661 keV]	7.2	12	7.2	6.7	8.5	-	7
Radiation length x ₀ [cm]	2.9	1.1	3.5	2.7	1.2	-	2.74
Photon yield @300K [10 ³ Ph/MeV]	38	8 - 10	35	25	28	20	32

Advantage

- ☐ High density
- ☐ Fast decay time
- ☐ Preferred for PMT readout
- ☐ Very good machining properties

Main usage

- ☐ Gamma and beta ray detectors
- ☐ PET and SPECT matrixes
- ☐ High spatial resolution imaging screens for X ray, gamma and beta



The material can be delivered in the form standard detectors for electron microscopy, i.e. plates or pixel detectors.