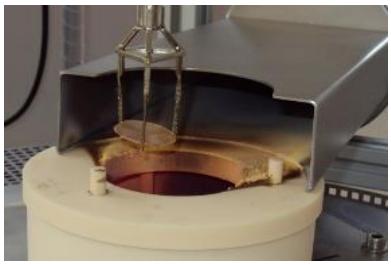
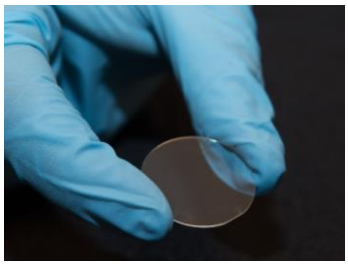
Thin-Film scintillators

Inorganic crystals also called scintillators are widely used on synchrotron beamlines to convert X-rays into visible light, mostly for imaging and alignment applications. Thin film layer growth requires the use of several advanced techniques: sputtering, chemical solution deposition, liquid phase epitaxy (LPE), laser ablation, etc. LPE technique was chosen due to its high reproducibility, simplicity and homogeneous distribution of the activator ions within the film.
ESRF manufactures essentially 3 types of scintillators at LPE. These 3 types are meant to satisfy the various experimental conditions required by the scientists.

Features

- 200 nm optical-grade quality - fully transparent - high-contrast images
- 500 nm spatial resolution possible, equal to optical microscopy diffraction limit
- Low afterglow





Characteristics

	Unit	GGG:Tb	GGG:Eu	LSO:Tb
Absorption efficiency(20keV) for 5um thick crystal	%	11.3	11.3	15.4
Wavelength	nm	550	595-610-715	550
Light yield	ph/keV	20	32	40
Typical thickness range	um	1-20	1-40	1-20
Standard/maximum dimensions	mm	8x8/Ø22	8x8/Ø22	8x8/Ø22