

CRYTUR's Capabilities in the Manufacturing of Advanced Single-Crystal Scintillators and Assemblies

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CRYTUR [1] is a European leader in the development, production, and integration of high performance single crystal materials for scintillation and optical applications. With decades of experience in precision crystal growth and processing, the company has established an integrated manufacturing chain from crystal growth to final detector assembly and performance testing.

The production portfolio covers a wide range of single crystal materials, including oxide compounds such as Ce and Pr doped garnets (YAG, LuAG, GAGG), perovskites (YAP:Ce), and other engineered compositions optimized for scintillation, laser, and optical applications. CRYTUR's in house capabilities encompass crystal growth by the Czochralski method, precision machining, polishing, coating, and mechanical integration, ensuring excellent optical quality, reproducibility, and long term reliability of the final products.

These materials are used in a wide range of applications, including beam diagnostic systems for electrons, ions and gamma radiation, spectral and spectroscopic units for material analysis, and calorimetry in high energy physics experiments. In the medical and industrial sectors, CRYTUR crystals are integrated into X-ray and gamma-ray imaging systems for medical diagnostics and non destructive testing, where high resolution, dynamic range, and radiation hardness are critical.

In this contribution, we will focus specifically on Ce doped garnet single crystals, presenting CRYTUR's growth capabilities, quality assurance processes, and integration of these materials into complete scintillation components and detector assemblies.

1. 'Integrated crystal-based solutions'. www.crytur.com (accessed Jan. 28, 2026).