

Radiation Detection Materials Markets: 2015-2022

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Abstracts

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Growth in the demand for radiation detection, especially for homeland security and medical applications, is driving the need for radiation detection materials that can provide sufficient performance at the right price. Increased interest in mobile radiation detection for security and military applications places more emphasis on materials that can reliably distinguish between naturally occurring and potentially threatening sources of radiation while using relatively thin crystals in order to limit size and weight of the detectors. At the same time, certain applications demand larger crystals, putting pressure on suppliers to grow defect-free large diameter crystals at a cost the market will accept.

This report provides insight into the status of a wide range of materials for detection of gamma rays, x-rays and neutrons. Materials that have been used for decades for gamma and x-ray detection are not going away, but replacement materials are on the horizon. Restrictions on the use of helium-3 continue to drive a need for other materials for neutron detection. Materials such as CLYC ($\text{Cs}_2\text{LiYCl}_6$), that can detect both gamma rays and neutrons, are very compelling and have received a lot of attention lately. We discuss the commercial prospects of CLYC and other materials that have the potential to change the radiation detection materials industry. Notable materials include strontium iodide and cadmium zinc telluride (CZT).

Much of the focus is on the companies that make scintillation and semiconductor materials for radiation detection, and this report covers suppliers that are at the forefront of developing new materials and manufacturing processes, including Acrorad, CapeSym, Hellma Materials, Hilger Crystals, Redlen Technologies, RMD Instruments, Saint-Gobain, and others. We also discuss companies upstream and downstream of the

crystal suppliers and how changes in detection materials affect their businesses.

While homeland security and medical imaging are the primary applications that materials suppliers are targeting, other applications have a significant effect on the development of this industry. This report discusses the role of radiation detection materials in the nuclear power industry and also covers various industrial and scientific applications that use nontrivial quantities of radiation detection materials.

This report includes granular eight-year forecasts of radiation detection materials, looking both at volume of material required and revenues. Forecasts are broken down by material type, application, and geography.

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