

# Global Halide Scintillator Crystals Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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## Abstracts

According to our (Global Info Research) latest study, the global Halide Scintillator Crystals market size was valued at US\$ 147 million in 2025 and is forecast to a readjusted size of US\$ 194 million by 2032 with a CAGR of 4.0% during review period.

Halide scintillator crystals are materials used in detecting radiation by emitting visible light when exposed to high-energy particles. These crystals are employed in various applications, such as medical imaging (e.g., PET scans), nuclear medicine, and radiation monitoring. They work by absorbing ionizing radiation and then re-emitting it as visible light, which can be measured to determine the presence and intensity of radiation. Common halide scintillator crystals include sodium iodide (NaI) doped with thallium and cesium iodide (CsI).

In 2024, global Halide Scintillator Crystals production reached approximately 158.49 Ton, with an average global market price of around US\$ 853 per kg.

The upstream supply chain for halide scintillator crystals encompasses high-purity halide compounds, rare-earth materials, dopants, precision crucibles and crystal-growth equipment. Key raw materials include ultra-high-purity NaI and CsI powder, lanthanum oxide and bromide compounds for LaBr<sub>3</sub>, europium and cerium dopants and specialty halide salts for mixed-elpasolite systems. Global suppliers such as Albemarle, Sigma-Aldrich, American Elements, Merck and Materion provide high-purity halide chemicals, while companies including Umicore and Solvay supply rare-earth dopant materials. Crystal growers depend on platinum, iridium or graphite crucibles from Heraeus, Morgan Advanced Materials and Plansee, aligned with vertical Bridgman or modified Czochralski growth systems manufactured by Crystal Systems, Cyberstar and other

precision furnace providers. The cost structure is shaped by halide purity, dopant quality, yield from crystal growth and post-processing such as cutting, polishing and encapsulation.

Downstream usage spans medical and healthcare imaging, industrial nondestructive testing, nuclear security, military and defense systems and other specialized scientific applications. In the Medical & Healthcare sector, NaI:TI and CsI:TI are widely used in gamma cameras, PET scanners and SPECT systems due to strong emission intensities and compatibility with photomultiplier and photodiode readout schemes. Industrial Applications rely on NaI, CsI and mixed-halide scintillators for X-ray inspection, oil well logging, environmental radiation monitoring and non-destructive testing across manufacturing and energy sectors. Military & Defense customers deploy high-performance crystals such as LaBr<sub>3</sub>:Ce, SrI<sub>2</sub>:Eu and CLYC for radiation identification, neutron-gamma discrimination and field-deployable spectroscopic monitoring. Other applications include scientific instruments, astrophysical detectors and research reactors. Key customers include medical device manufacturers, imaging system integrators, nuclear security agencies, inspection equipment OEMs and defense contractors requiring high resolution, stability and spectral sensitivity.

Gross margins for halide scintillator crystals generally fall in the 30% to 50% range, depending on material type, dopant composition and crystal-growth difficulty.

Halide scintillator crystals represent a core class of inorganic radiation-detection materials capable of converting incoming ionizing radiation into visible or near-visible light pulses, enabling accurate energy measurement and high-sensitivity detection in medical, industrial, and security environments. The product landscape includes sodium iodide (NaI), cesium iodide (CsI), lanthanum bromide (LaBr<sub>3</sub>) and other advanced mixed-halide scintillators. Among them, NaI crystals, particularly thallium-doped NaI:TI, remained the dominant product category in 2024, accounting for approximately 41% of the global market due to their mature manufacturing base, high light output, broad spectral response and extensive installed use in legacy and modern detection systems. CsI scintillators offer robust mechanical stability, lower hygroscopicity and compatibility with compact photodiode-based detectors, supporting widespread adoption in portable and industrial systems. LaBr<sub>3</sub> crystals represent the premium performance class, providing exceptionally high light yield and outstanding energy resolution required for advanced spectroscopy, nuclear security and specialized medical instrumentation. Other materials, including SrI<sub>2</sub>:Eu, CLYC and composite elpasolites, fill niche demand in neutron-gamma discrimination, well logging and military sensing applications where dual-mode detection and high sensitivity are critical.

Application demand is led by Industrial Applications, which accounted for more than 42% of global market share in 2024. Industries such as oil and gas, power generation, manufacturing inspection and environmental radiation monitoring rely heavily on NaI, CsI and mixed-halide scintillator crystals to support nondestructive testing, X-ray inspection, pipeline integrity evaluation, cargo screening and fixed-site radiation monitoring. The Medical & Healthcare segment applies NaI:TI and CsI:TI in SPECT imaging, PET systems, gamma cameras and nuclear medicine, benefiting from stable light output, strong emission intensity and compatibility with PMTs and silicon photodiodes. Military & Defense applications integrate high-performance LaBr<sub>3</sub>, SrI<sub>2</sub>:Eu and CLYC into portable spectrometers, vehicle-mounted detection systems, border-security monitors and field-deployable neutron/gamma discrimination instruments, where energy resolution and radiation-type identification reliability are essential. Other uses include astrophysical detection, research instrumentation and high-energy physics experiments requiring ultra-high sensitivity materials.

Market growth is driven by several structural factors. The expansion of industrial nondestructive testing, the rising demand for radiation detection in oil well logging and the broad adoption of scintillator-based detectors in safety-critical industrial settings continue to support strong volume growth. Increasing healthcare investment and the global shift toward early-stage imaging diagnostics stimulate demand for SPECT and PET systems, reinforcing the use of NaI and CsI scintillators. In defense and homeland security, heightened geopolitical tension and increased investment in nuclear-detection infrastructure stimulate demand for high-resolution materials such as LaBr<sub>3</sub> and mixed-halide crystals. Technological advances in crystal growth, dopant control, encapsulation and readout electronics further enhance material performance and expand new application boundaries.

However, the halide scintillator crystal market also faces certain restraints. The growth of high-performance LaBr<sub>3</sub> and SrI<sub>2</sub> materials is limited by high production cost, low crystal-growth yields and dependence on ultra-high-purity halide compounds. Some halide crystals are highly hygroscopic, requiring sensitive storage and encapsulation processes that raise system costs. Competing detector technologies such as semiconductor radiation detectors, silicon photomultipliers and emerging perovskite-based materials present alternative solutions in specific applications. Market growth is also influenced by regulatory requirements in medical imaging, fluctuations in rare-earth pricing and investment cycles in the industrial and oil-and-gas sectors. Despite these constraints, the halide scintillator crystal market remains robust, supported by increasing global safety standards and the strong consumption base in Asia-Pacific,

which accounted for approximately 48% of global revenue in 2024.

This report is a detailed and comprehensive analysis for global Halide Scintillator Crystals market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

### **Key Features:**

Global Halide Scintillator Crystals market size and forecasts, in consumption value (\$ Million), sales quantity (Tons), and average selling prices (US\$/kg), 2021-2032

Global Halide Scintillator Crystals market size and forecasts by region and country, in consumption value (\$ Million), sales quantity (Tons), and average selling prices (US\$/kg), 2021-2032

Global Halide Scintillator Crystals market size and forecasts, by Type and by Application, in consumption value (\$ Million), sales quantity (Tons), and average selling prices (US\$/kg), 2021-2032

Global Halide Scintillator Crystals market shares of main players, shipments in revenue (\$ Million), sales quantity (Tons), and ASP (US\$/kg), 2021-2026

### **The Primary Objectives in This Report Are:**

To determine the size of the total market opportunity of global and key countries

To assess the growth potential for Halide Scintillator Crystals

To forecast future growth in each product and end-use market

To assess competitive factors affecting the marketplace

This report profiles key players in the global Halide Scintillator Crystals market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Luxium Solutions (Saint-Gobain Crystals), Dynasil, Shanghai SICCAS, Scionix, Rexon Components, EPIC Crystal, Kinheng Crystal Materials (Shanghai) Co., Ltd., Beijing Scitlion Technology, Alpha Spectra, Crydet, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

## **Market Segmentation**

Halide Scintillator Crystals market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Type, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

### Market segment by Type

Nal

CsI

LaBr3

Others

### Market segment by Crystal Growth Method

Bridgman

Czochralski, etc.

### Market segment by Sales Channel

Online Sales

Offline Sales

### Market segment by Application

Medical & Healthcare

Industrial Applications

Military & Defense

Others

#### Major players covered

Luxium Solutions (Saint-Gobain Crystals)

Dynasil

Shanghai SICCAS

Scionix

Rexon Components

EPIC Crystal

Kinheng Crystal Materials (Shanghai) Co., Ltd.

Beijing Scitlion Technology

Alpha Spectra

Crydet

Shanghai EBO

Market segment by region, regional analysis covers

North America (United States, Canada, and Mexico)

Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)

Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)

South America (Brazil, Argentina, Colombia, and Rest of South America)

Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East)

& Africa)

**The content of the study subjects, includes a total of 15 chapters:**

Chapter 1, to describe Halide Scintillator Crystals product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of Halide Scintillator Crystals, with price, sales quantity, revenue, and global market share of Halide Scintillator Crystals from 2021 to 2026.

Chapter 3, the Halide Scintillator Crystals competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the Halide Scintillator Crystals breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Type and by Application, with sales market share and growth rate by Type, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026. and Halide Scintillator Crystals market forecast, by regions, by Type, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of Halide Scintillator Crystals.

Chapter 14 and 15, to describe Halide Scintillator Crystals sales channel, distributors, customers, research findings and conclusion.

## Contents

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