

## **Dosimeter - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029**

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### **Report description:**

The Dosimeter Market size is estimated at USD 3.65 billion in 2024, and is expected to reach USD 5.15 billion by 2029, growing at a CAGR of 7.11% during the forecast period (2024-2029).

#### Key Highlights

- Dosimeters have found diverse applications in various industries, including the medical and manufacturing sectors. In the manufacturing sector, the use of radioactive sources or X-ray machines has increased the need for dosimeters to monitor radiation exposure over an extended period. Passive dosimeters, such as film badges and thermoluminescent dosimeters, are commonly used for routine monitoring in the manufacturing industry.
- The demand for dosimeters in the industrial sector is further supported by government regulations that aim to control emissions and ensure labor safety. However, the high cost of the device and its sensitivity to electromagnetic fields, and mechanical instability are factors that can hinder the growth of the active dosimeter market.
- The COVID-19 pandemic led to an increased demand for dosimeters, particularly in disinfection settings where UV light is used. Dosimeters are used to measure the UV exposure of workers involved in disinfection activities to ensure their safety. In addition, certain industries involved in pandemic response efforts, such as the manufacture of personal protective equipment (PPE), may require dosimeters to monitor radiation exposure levels.
- Overall, the demand for dosimeters is expected to grow in various industries, driven by factors such as the increasing use of radiation-mediated technology, government regulations, and the need for worker safety. However, the market growth may be limited by factors such as the high cost of the device and its sensitivity to environmental factors.

#### Dosimeter Market Trends

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## Rising Application of Radioactive Substances Across the Industrial Sector Drives the Market

- Science and industry have found numerous applications for radioisotopes that improve productivity and provide unique insights into materials and processes. Radioisotopes serve as tracers to monitor fluid flow and filtration, detect leaks, and gauge engine wear and corrosion of process equipment. The International Atomic Energy Agency (IAEA) estimates that several hundred thousand such gauges are operating worldwide, measuring the amount of radiation absorbed in materials.
- Radioisotopes are also used to study the mixing and flow rates of various materials, inspect metal parts, and assess the integrity of welds across a range of industries. Industrial gamma radiography utilizes the penetrating power of radiation to screen materials effectively. It works similarly to X-rays used in airport security checks but with a small pellet of radioactive material in a sealed titanium capsule.
- In addition, radioisotopes are used as fuel in nuclear reactors to generate power and control the thickness of paper, plastic, and metal sheets during manufacturing. They are also used for manufacturing luminescent paints and objects that exhibit radio-luminance.
- India has seen rapid industrialization in recent decades, leading to increased radiation and harmful gases. Dosimetry systems are being installed to prevent excessive radiation exposure to employees and healthcare professionals in many industries and hospitals. These factors are expected to propel the growth of the market in India.
- As of May 2022, there were 53 nuclear reactors under construction globally, with China ranking first with 15 units and India following closely with eight reactors under construction at the time.

## Asia Pacific is Expected to Witness Significant Growth

- The Asia-Pacific region is expected to dominate the global dosimeter market, primarily due to the increasing adoption of radiation across various end-user industries. The region is anticipated to witness significant growth in terms of revenue, driven by the growing focus on nuclear power for electricity generation, to meet the rising energy demands, and stringent regulations for human safety in emerging countries such as China, Japan, and India.
- Exxon Mobil estimates that in 2040, nuclear energy demand in the Asia-Pacific region will reach 22 quadrillion BTUs, accounting for 45 quadrillion BTUs. China Nuclear Energy Association reported that China's nuclear power production capacity increased by 4.5% YoY during the first five months of 2022, reaching a peak of 166.3 billion kWh.
- According to the World Nuclear Association, China is on track to become the world's leading producer of nuclear energy by 2030, surpassing the United States. The increasing construction of nuclear power plants in China is expected to boost dosimeter demand over the study period. For instance, in 2022, China approved the construction of two additional nuclear power facilities in the country's south, with an expenditure of USD 11.62 billion, bringing the total number of approved atomic power plants to ten, the highest in a decade.
- Countries like China have included R&D in nuclear safety in their national planning for scientific and technological programs, established a National Research and Development Center for Nuclear and Radiation Safety Regulation, and conducted research on key technologies of radiation environment monitoring and technical review to enhance safety. These initiatives are expected to drive dosimeter demand in China during the study period.
- Japan has one of the world's aging populations, with a significant portion being over 65 years, expected to rise substantially by 2060. According to the World Bank, the proportion of Japan's population over 65 years increased from 24% in 2021 to 29% in 2021, a 26% increase. The aging population is likely to drive demand for healthcare solutions, and the rise in cancer incidence in the geriatric population will affect the medical sector market for dosimeters. Hence, it is projected that the dosimeter industry will expand throughout Japan in the coming years.
- Additionally, South Korea, being one of the most advanced and industrialized countries globally, offers competitive first-world

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treatments for cancer, cardiac, and vascular diseases. In November 2022, TAE Life Sciences (TLS), a biological-targeted radiation therapy company, announced a partnership with HDX Corporation (HDX) to bring TLS's targeted radiation therapy to South Korea. Rising initiatives regarding radiation therapy are expected to drive market growth in the region.

## Dosimeter Industry Overview

The Dosimeter Market is moderately fragmented, with major players such as Fortive Corporation, Mirion Technologies Inc., Thermo Fisher Scientific Inc., Arrow-Tech Inc., and Fuji Electric Co. Ltd. These players in the market are adopting strategies such as partnerships and acquisitions to enhance their product offerings and gain sustainable competitive advantage.

In January 2023, Mirion Technologies Inc. introduced a new technology that integrates Spot's radiation technology with the Spot agile, mobile robot, enabling workers to measure and detect radiation from a safe distance. This innovative technology is facilitated through the Mirion backpack, which allows for the integration of various types of sensors and inputs, including the Robot Controller Interface, RDS-32 Survey Meter, Data Analyst module, and SPIR-Explorer sensor, an all-in-one detector for dosimetry and spectroscopy measurements.

### Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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