

Dosimeter Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

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Report description:

The dosimeter market is expected to register a CAGR of over 7.36% during the forecast period. The rising demand for dosimeter applications for cancer treatments in the medical industry, during which patients are given particular and targeted amounts of radiation to destroy cancer cells, is expected to drive the demand for the market.

Key Highlights

The demand for the market is being driven by the expanding use of dosimeters in the medical sector and at industrial locations where workers may be exposed to poisonous and harmful gases.

The market represents the sales of various types of dosimeters, such as electronic personal dosimeters (EPD), thermoluminescent dosimeters (TLD), optically stimulated luminescence dosimeters (OSL), and film badge dosimeters (FBD) across various industries. The dosimeter market is also experiencing increased demand in locations where people deal with hazardous waste or radioactive substances, including nuclear power plants and hospitals.

Increased industrial use of nuclear energy and nuclear facilities is expected to accelerate the deployment of radiation detection and monitoring technology, raising the demand for dosimeters across emerging economies. Individuals working in nuclear power plants, nuclear research facilities, and medical laboratories must monitor their exposure to harmful radiation. Hence, those individuals are the primary users of electronic personal dosimeters.

However, the device's high price is limiting market expansion. The device's accuracy may be impacted by different readings caused by electromagnetic fields, which could be detrimental to the market. The gadget is also sensitive to any mechanical instability, resulting in a false or erroneous reading and impeding the market expansion for active dosimeters.

The COVID-19 pandemic presented several new challenges to radiation protection and technical safety services. The pandemic caused economic havoc in small, medium, and large-scale industries worldwide. During the pandemic, hospitals worldwide were acquiring several new X-ray machines and mobile X-ray units for the diagnosis and treatment evaluation of COVID-19 patients, as well as developing fully equipped outpatient departments and isolation wards. The healthcare industry's increased demand for X-ray imaging of COVID-19-infected patients and radiation-induced therapies for cancer patients provided the necessary impetus for market growth.

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Dosimeter Market Trends

Growing Demand for Radiation and Monitoring Devices Across the Medical Sector to Drive the Market

The European Radiation Dosimetry Group undertook a thorough survey to gather pertinent data on the usage of active personal dosimeters in ionizing radiation applications for medical imaging. The goal was to compile information on active personal dosimeters and pinpoint the underlying issues with their use in hospitals.

According to the survey, interventional radiology and cardiology departments, nuclear medicine, and radiation are the fields that employ active dosimeters the most frequently (54%, 29%, and 12%, respectively). Silicon diodes are widely used as the detector in most active dosimeter models. Although the radiation beam qualities in which they are calibrated and those in which they are employed differ significantly, their calibration is frequently neglected.

The growing players offering radiation safety training have contributed significantly to the medical sector toward dosimeter adoption. With current certification for radiation technologists and ancillary staff on training, education, and evidence of competency, the need for Joint Commission accreditation is crucial.

Given that an estimated majority of cancer patients require radiation therapy at some time throughout their course of care, even a little deviation of 5% from the intended radiation dose can considerably impact the course of the treatment. Therefore, it is crucial that measurement equipment is set up and used correctly to provide patients with highly accurate radiation dosages. For instance, in 2021, the sales of instruments for detecting radiation amounted to GBP 145.32 million (USD 166.46 million) in the United Kingdom. This statistic covers instruments and equipment for measuring or detecting alpha, beta, gamma, X-ray, cosmic, or other ionizing radiations, as well as detection tools with ionization chambers, Geiger and scintillation counters, dosimeters, and related radiology tools; "thermophile" neutron detectors, tools with neutron detector tubes, radiation measuring or detecting tools, and excludes gamma cameras and scintillation scanners.

Europe to Hold the Largest Market Share

Due to the rising prevalence of cancer in Europe, diagnostic centers have adopted radiation therapies and nuclear medicines. For instance, each year, 2.7 million individuals in the European Union are diagnosed with cancer, and 1.3 million people succumb to the disease. In February 2021, the EU's first systematic strategy plan to enable a safe, high-quality, and dependable use of radiological and nuclear technologies in healthcare, the Strategic Agenda for Medical Ionizing Radiation Applications (SAMIRA) action plan, was launched. These radiations require proper medical radiation detection, monitoring, and safety equipment to detect environmental radiation exposure. This is a significant factor driving the growth of dosimeters in the region.

The United Kingdom has 15 reactors generating about 21% of its electricity, but almost half of this capacity will be retired by 2025. To overcome this, the UK government has approved a new nuclear power project worth USD 23 billion, producing 3,200 MW of power from two reactors, which is anticipated to impact the demand for dosimeters in the market.

The demand for diagnostics and imaging procedures, like CT scans and MRIs, is expected to increase as the populace ages. For instance, in January 2021, according to ONS, 7.5 million more individuals in the United Kingdom will likely be 65 years of age or older than 50 years. The senior population has a higher cancer rate, which raises the demand for radiation treatment and nuclear medicine. This increase in radioactive-substance-using technology is likely to drive the market for dosimeters in the United Kingdom.

Moreover, Germany is one of the world's top countries for radiation treatment and nuclear medicine. Cardiovascular illnesses, cancers, and neurological problems are a few chronic ailments that nuclear medicine and radiotherapy assist in curing. The need for dosimeters increased with the involvement of several radiation treatment facilities in educating radiologists to recognize

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distinctive signs. As a result, the development of Germany's dosimeter industry is fueled by the rising demand for radiation treatment and nuclear medicine.

Dosimeter Market Competitor Analysis

The dosimeter market is moderately competitive and consists of several significant players. In terms of market share, several players lead the industry. However, new competitors are growing their market position and, consequently, their commercial footprint throughout emerging nations as a result of the development in the measurement and assessment of the electronic component.

In July 2022, Mirion Technologies Inc. announced the rebranding of its Medical segment as the Mirion Medical Group, while the establishment group reinforces the Mirion commitment to leveraging its expertise in ionizing radiation for healthcare applications. Mirion Technologies Inc., a worldwide supplier of measurement, detection, analysis, and supervision systems to the medical, defense, nuclear, and research end industries, announced the purchase of Dosimetry Badge, a small, US-based supplier of portable dosimeter badges in October 2021.

Additional Benefits:

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

Table of Contents:

1 INTRODUCTION

1.1 Study Assumptions and Market Definition

1.2 Scope of the Study

2 RESEARCH METHODOLOGY

3 EXECUTIVE SUMMARY

4 MARKET INSIGHTS

4.1 Market Overview

4.2 Industry Attractiveness - Porter's Five Forces Analysis

4.2.1 Bargaining Power of Suppliers

4.2.2 Bargaining Power of Buyers

4.2.3 Threat of New Entrants

4.2.4 Threat of Substitute Products

4.2.5 Intensity of Competitive Rivalry

4.3 Industry Value Chain Analysis?

4.4 Impact of COVID-19 on the Market

5 MARKET DYNAMICS

5.1 Market Drivers

5.1.1 Growing Demand For Radiation And Monitoring Devices Across The Medical Sector

5.1.2 Rising Application Of Radioactive Substances Across The Industrial Sector

5.2 Market Restraints

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5.2.1 Product Accuracy, Stringent Government Regulations, And High Costs

6 MARKET SEGMENTATION

6.1 By Type

6.1.1 Electronic Personal Dosimeter (EPD)

6.1.2 Thermo Luminescent Dosimeter (TLD)

6.1.3 Optically Stimulated Luminescence Dosimeters (OSL)

6.1.4 Film Badge Dosimeter

6.1.5 Other Types

6.2 By Application

6.2.1 Active

6.2.2 Passive

6.3 By End-user Industry

6.3.1 Healthcare

6.3.2 Oil and Gas

6.3.3 Mining

6.3.4 Nuclear Plants

6.3.5 Industrial

6.3.6 Manufacturing

6.3.7 Other End-user Industries

6.4 By Geography

6.4.1 North America

6.4.2 Europe

6.4.3 Asia-Pacific

6.4.4 Rest of the World

7 COMPETITIVE LANDSCAPE

7.1 Company Profiles

7.1.1 Landauer Inc.

7.1.2 Mirion Technologies Inc.

7.1.3 Thermo Fisher Scientific Inc.

7.1.4 Arrow-Tech Inc.

7.1.5 Fuji Electric Co. Ltd

7.1.6 ATOMTEX

7.1.7 Tracerco Limited

7.1.8 Unfors RaySafe AB

7.1.9 Automess - Automation and Measurement GmbH

7.1.10 SE International Inc.

8 INVESTMENT ANALYSIS

9 FUTURE OF THE MARKET

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