

Molecular Spectroscopy - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

The Molecular Spectroscopy Market size is estimated at USD 2.98 billion in 2025, and is expected to reach USD 3.57 billion by 2030, at a CAGR of 3.72% during the forecast period (2025-2030).

The major factors driving the market include the rapid adoption in the pharmaceutical industry, penetration of MS technology in various verticals, and increased emphasis on the discovery of newer molecules by pharmaceuticals.

The growing COVID-19 pandemic has also had a positive impact on the market as scientists are increasing the applications of Raman spectroscopy for COVID-19 testing. For instance, a Northern Arizona University (NAU) research team was found developing a new test technology for SARS-CoV-2 using single-molecule surface-enhanced Raman spectroscopy (SM-SERS). The project was named 'Development of a New Test for SARS-CoV-2 Using Single-Molecule Surface-Enhanced Raman spectroscopy' and was awarded a USD 200,000 grant from the National Science Foundation's Rapid Response Research (RAPID) funding program. Therefore, with the increase in research and development activities by pharmaceuticals related to drug discovery, the demand for molecular spectroscopy is consistently expected to rise over the forecast period.

Molecular spectroscopy is being used in the research and development (R&D) of pharmaceuticals and other biotechnology products, and one of the molecular spectroscopy types used in R&D is near-infrared spectroscopy (NIR). In recent years, NIR spectroscopy has also gained a wide appreciation within the pharmaceutical industry due to its major advantages over other analytical techniques that include easy sample preparation and the expectation of chemical and physical sample parameters from one single spectrum. Therefore, the rising affinity toward this technology has been widely noted, which may drive the growth of the market.

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Molecular spectroscopy is also found to be widely adopted across different application sectors, including pharmaceuticals and many others. Raman spectroscopy has proven to be a strong analytical technique for drug discovery and pharmaceutical development.

It is being used to study the structural activity relationships and optimize the reaction conditions and other parameters, such as polymorph and formulation screening, which lead to the scaling up required for the transfer of drug compounds from discovery to development. Hence, the market is expected to grow rapidly during the forecast period.

Molecular Spectroscopy Market Trends

The NMR Spectroscopy Segment is Expected to Observe Good Growth Over the Forecast Period

Nuclear magnetic resonance (NMR) spectroscopy is an analytical chemistry technique used in quality control and research to determine the content and purity of a sample and its molecular structure. The advantages of NMR spectroscopy are that it requires less sample preparation and a non-destructive method, retaining the molecules being examined.

With the rise in COVID-19 cases, there is an increasing demand for research and development activities from pharmaceutical companies, which has stimulated the demand for drug discovery and development.

In recent years, NMR spectroscopy has become the leading technique for determining the structure of organic compounds, and it has wide usage in application areas, like pharmaceuticals, biotechnology and biopharmaceuticals, food and beverage testing, environmental testing, and research institutes. In addition, NMR spectroscopy is also increasingly being used in biochemical and biological application areas, including hit and lead discovery, metabolite profiling, in vivo spectroscopy (MRS), and imaging (MRI).

Many new developments have been observed in NMR spectroscopy, which are driving the much-needed improvement in sensitivity and versatility and expanding the number of applications. In October 2020, Bruker Corporation announced the European launch of the Fourier 80 system, which is a nuclear magnetic resonance (FT-NMR) benchtop spectrometer. There are also many new developments that are expected to lead to significant market growth during the forecast period.

North America is Expected to Witness High Growth Over the Forecast Period

North America is found driving the market due to increased usage of molecular spectroscopy in the pharmaceutical sector, increased funding for environmental testing, rising concerns about food safety, and favorable government initiatives and policies.

Since the COVID-19 outbreak, the production and supply chain of spectroscopic instruments have been restricted due to the lockdowns. Hence, the market is expected to be impacted during the pandemic. According to the article published on the National Institute of Health 2020, spectroscopy is being widely used to detect and monitor COVID-19 cases. However, the local players have experienced an increase in research and development activities related to drug discovery against COVID-19 by various pharmaceutical companies.

For instance, according to the Pharmaceutical Research and Manufacturers Association (PhRMA), the United States is the largest biopharmaceuticals market, accounting for one-third of the global market, and a world leader in biopharmaceutical R&D. The United States also has the world's most supportive domestic environment for the research, development, and commercialization of pharmaceuticals with minimal market barriers. Thus, the use of the spectroscopic technique in drug discovery and development in the United States is expected to rise over the years.

In Canada, there is also the presence of many pharma companies that continue to play a key role in propelling the market growth.

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In January 2021, numares AG and Bruker Corporation announced a collaboration agreement to develop novel diagnostics tests utilizing NMR spectroscopy.

In March 2020, trinamiX GmbH, a subsidiary of BASF SE, launched a mobile near-infrared (NIR) spectroscopy solution. Spectroscopy is a well-proven analysis method that trinamiX now makes affordable and accessible beyond factory and laboratory applications. Thus, the increasing R&D activities of pharmaceutical companies in drug discovery and development in the country and new product launches by major players in the United States are expected to drive the molecular spectroscopy market during the forecast period.

Molecular Spectroscopy Industry Overview

The market for molecular spectroscopy is moderately competitive. With the growing applications of molecular spectroscopy, new players are looking forward to entering the market. In terms of the market share, few companies such as Thermo Fisher Scientific Inc., Agilent, Bruker, and Danaher have better records from the past few years. The players are also involved in activities like mergers, acquisitions, joint ventures, partnerships, and collaborations. These activities help in increasing the influence of the players in the molecular spectroscopy market, eventually driving the market growth.

Additional Benefits:

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

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