

Raman Spectroscopy Market by Type (Benchtop, Portable), Instrument (Microscopy, FT, Handheld & Portable), Sampling Technique (Surface-enhanced Raman Scattering, Tip-enhanced Raman Scattering), Application and Region- Global Forecast to 2028

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Abstracts

The Raman spectroscopy market is projected to reach USD 1.1 billion by 2028 from USD 0.8 billion in 2023, at a CAGR of 7.0% from 2023 to 2028.

In 2022, the surface-enhanced Raman scattering (SERS) segment held the largest share of the Raman spectroscopy market, and a similar trend is likely to be observed during the forecast period. Continuous technological development of nanotechnology and extensive theoretical and experimental research has significantly broadened the scope of surface-enhanced Raman scattering and increased its demand in pharmaceutical, life science, and materials science research. Also, the SERS sampling technique can be used to amplify weak Raman signals, especially when signals using visible light excitation and a low number of scattered photons are available for detection. Hence, surface-enhanced Raman scattering finds its application in drug delivery, detection of trace amounts of chemical and biological threat agents, Point-of-care (POC) medical diagnostic devices, and forensic field testing.

Handheld & Portable Raman instrument is expected to account for the largest market share in Raman spectroscopy hardware market during the forecast period

The handheld & portable Raman segment is projected to record the largest share of the market during the forecast period. Handheld & portable Raman spectroscopy has the ability to offer a simple point-and-shoot format and fully portable testing with an ergonomic design. So, it enables rapid responses for unknown characterization against

integrated digital libraries and pre-existing method data. In addition, low-skilled personnel can easily carry out these spectroscopies to acquire the molecular fingerprint of raw materials for pharmaceutical, life science, and materials science applications.

The major advantages of handheld and portable Raman instruments include the ability to perform in-field measurements of robust design as well as usual sample handling. However, the spectra of handheld and portable Raman devices are sometimes less reproducible, less accurate, and are affected by noise, which can be considered as a significant drawback, especially in pharmaceutical applications. Handheld and portable Raman instruments are used for the analysis of pharmaceutical, life science, agriculture, drugs, explosives, and mineral samples.

North America is accounted for the second highest market share in 2022

The region is an early adopter of new and advanced technologies. The market growth in this region can be attributed to the presence of many Raman spectroscopy manufacturers in the US. Thermo Fisher Scientific Inc., Agilent Technologies, Inc., Bruker, and Mettler Toledo are among the few leading manufacturers offering Raman spectroscopy in the US. These players spend extensively on research and development (R&D) activities to provide innovative offerings in this market. For instance, in 2021, Thermo Fisher Scientific, Inc. invested nearly USD 1.4 billion in R&D, whereas in the same year, Agilent Technologies, Inc. introduced the new Agilent Vaya Raman raw material identity verification system. This handheld instrument accelerates quality control testing in the pharmaceuticals and biopharmaceutical industries.

The break-up of profile of primary participants in the Raman spectroscopy market

By Company Type: Tier 1 – 50%, Tier 2 – 30%, Tier 3 – 20%

By Designation Type: C Level – 35%, Director Level – 30% , Others – 35%

By Region Type: North America – 40%, Europe – 25%, Asia Pacific – 20%, Rest of the World – 15%

The major players of Raman spectroscopy market are Thermo Fisher Scientific Inc. (US), Mettler Toledo (Switzerland), Agilent Technologies Inc. (US), Bruker (US), Renishaw Plc (UK), Rigaku Corporation (Japan), Oxford Instruments (UK), Endress+Hauser Group Services AG (Switzerland), HORIBA Ltd. (Japan), PerkinElmer

Inc. (US), Hamamatsu Photonics K.K (Japan), Metrohm AG (Switzerland), and Anton Paar GmbH (Austria) among others.

Research Coverage

The report segments the Raman spectroscopy market and forecasts its size based on instrument, sampling techniques, application, and region. The report also provides a comprehensive review of drivers, restraints, opportunities, and challenges influencing the market growth. The report also covers qualitative aspects in addition to the quantitative aspects of the market.

Reasons to buy the report:

The report will help the market leaders/new entrants in this market with information on the closest approximate revenues for the overall Raman spectroscopy market and related segments. This report will help stakeholders understand the competitive landscape and gain more insights to strengthen their position in the market and plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the market and provides them with information on key market drivers, restraints, opportunities, and challenges.

The report provides insights on the following pointers:

Analysis of key drivers, restraints, opportunities, and challenges influencing the growth of the Raman spectroscopy market

Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product launches in the Raman spectroscopy market

Market Development: Comprehensive information about lucrative markets – the report analyses the Raman spectroscopy market across varied regions

Market Diversification: Exhaustive information about new products, untapped geographies, recent developments, and investments in the Raman spectroscopy market

Competitive Assessment: In-depth assessment of market shares, growth strategies and product offerings of leading players like Thermo Fisher Scientific

Inc. (US), Mettler Toledo (Switzerland), Agilent Technologies Inc. (US), Bruker (US), and Renishaw Plc (UK).

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