

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).

Contents

1 INTRODUCTION

1.1 STUDY OBJECTIVES

1.2 MARKET DEFINITION

1.2.1 INCLUSIONS AND EXCLUSIONS

1.3 STUDY SCOPE

FIGURE 1 RAMAN SPECTROSCOPY MARKET SEGMENTATION

1.4 CURRENCY CONSIDERED

1.5 UNITS CONSIDERED

1.6 LIMITATIONS

1.7 STAKEHOLDERS

1.8 SUMMARY OF CHANGES

1.9 IMPACT OF RECESSION

2 RESEARCH METHODOLOGY

2.1 RESEARCH DATA

FIGURE 2 RAMAN SPECTROSCOPY MARKET: RESEARCH DESIGN

2.1.1 SECONDARY DATA

2.1.1.1 Key data from secondary sources

2.1.1.2 Key secondary sources

2.1.2 PRIMARY DATA

2.1.2.1 Key data from primary sources

2.1.2.2 Key participants in primary processes across Raman spectroscopy value chain

2.1.2.3 Breakdown of primary interviews

2.1.2.4 Key industry insights

2.1.3 SECONDARY AND PRIMARY RESEARCH

2.2 MARKET SIZE ESTIMATION

FIGURE 3 MARKET SIZE ESTIMATION METHODOLOGY: APPROACH 1 (SUPPLY SIDE): REVENUE GENERATED BY KEY PLAYERS IN RAMAN SPECTROSCOPY MARKET

FIGURE 4 MARKET SIZE ESTIMATION METHODOLOGY: APPROACH 2 (SUPPLY SIDE): ILLUSTRATION OF REVENUE ESTIMATION OF KEY PLAYERS IN RAMAN SPECTROSCOPY MARKET

FIGURE 5 MARKET SIZE ESTIMATION METHODOLOGY: APPROACH 3 (DEMAND SIDE) —BOTTOM-UP ESTIMATION OF RAMAN SPECTROSCOPY MARKET BASED

ON REGION

2.2.1 BOTTOM-UP APPROACH

2.2.1.1 Approach to derive market size using bottom-up analysis

FIGURE 6 MARKET SIZE ESTIMATION METHODOLOGY: BOTTOM-UP APPROACH

2.2.2 TOP-DOWN APPROACH

2.2.2.1 Approach to derive market size using top-down analysis

FIGURE 7 MARKET SIZE ESTIMATION METHODOLOGY: TOP-DOWN APPROACH

2.3 MARKET SHARE ESTIMATION

2.4 DATA TRIANGULATION

FIGURE 8 DATA TRIANGULATION

2.5 RISK ASSESSMENT

TABLE 1 RISK FACTOR ANALYSIS

2.5.1 RECESSION IMPACT

2.6 RESEARCH ASSUMPTIONS AND LIMITATIONS

2.6.1 ASSUMPTIONS

2.6.2 LIMITATIONS

3 EXECUTIVE SUMMARY

3.1 RAMAN SPECTROSCOPY MARKET: RECESSION IMPACT

FIGURE 9 RAMAN SPECTROSCOPY MARKET: IMPACT OF RECESSION

FIGURE 10 HANDHELD & PORTABLE RAMAN SEGMENT HELD LARGEST SHARE OF RAMAN SPECTROSCOPY MARKET IN 2022

FIGURE 11 SURFACE-ENHANCED RAMAN SCATTERING SEGMENT TO HOLD LARGEST SHARE OF RAMAN SPECTROSCOPY MARKET DURING FORECAST PERIOD

FIGURE 12 PHARMACEUTICALS SEGMENT TO REGISTER HIGHEST CAGR IN RAMAN SPECTROSCOPY MARKET DURING FORECAST PERIOD

FIGURE 13 ASIA PACIFIC TO BE FASTEST-GROWING RAMAN SPECTROSCOPY MARKET DURING FORECAST PERIOD

4 PREMIUM INSIGHTS

4.1 ATTRACTIVE OPPORTUNITIES FOR PLAYERS IN RAMAN SPECTROSCOPY MARKET

FIGURE 14 INCREASED FOCUS ON DRUG DEVELOPMENT IN HEALTHCARE SECTOR

4.2 ASIA PACIFIC RAMAN SPECTROSCOPY MARKET, BY APPLICATION AND COUNTRY

FIGURE 15 PHARMACEUTICALS SEGMENT AND CHINA TO HOLD LARGEST SHARES OF ASIA PACIFIC RAMAN SPECTROSCOPY MARKET IN 2023

4.3 RAMAN SPECTROSCOPY MARKET, BY INSTRUMENT

FIGURE 16 HANDHELD & PORTABLE RAMAN SEGMENT TO HOLD LARGEST SHARE OF RAMAN SPECTROSCOPY MARKET FROM 2023 TO 2028

4.4 RAMAN SPECTROSCOPY MARKET, BY SAMPLING TECHNIQUE

FIGURE 17 SURFACE ENHANCEMENT RAMAN SCATTERING SEGMENT TO HOLD LARGEST SHARE OF RAMAN SPECTROSCOPY MARKET FROM 2023 TO 2028

4.5 RAMAN SPECTROSCOPY MARKET, BY APPLICATION

FIGURE 18 PHARMACEUTICALS SEGMENT TO ACCOUNT FOR LARGEST SHARE OF RAMAN SPECTROSCOPY MARKET IN 2028

4.6 RAMAN SPECTROSCOPY MARKET, BY COUNTRY

FIGURE 19 CHINA TO RECORD HIGHEST CAGR IN RAMAN SPECTROSCOPY MARKET DURING FORECAST PERIOD

5 MARKET OVERVIEW

5.1 INTRODUCTION

5.2 MARKET DYNAMICS

FIGURE 20 RAMAN SPECTROSCOPY MARKET: DRIVERS, RESTRAINTS, OPPORTUNITIES, AND CHALLENGES

5.2.1 DRIVERS

5.2.1.1 Increased focus on drug development in healthcare sector

5.2.1.2 Rising adoption of Raman spectroscopy in clinical applications

5.2.1.3 Advancements in Raman spectroscopic techniques used in catalysts and catalytic reactions

5.2.1.4 Growing awareness regarding food safety

5.2.1.5 Growing requirement for mineral analysis

FIGURE 21 RAMAN SPECTROSCOPY MARKET: IMPACT ANALYSIS OF DRIVERS

5.2.2 RESTRAINTS

5.2.2.1 High ownership cost

5.2.2.2 Requirement for highly skilled workforce to keep up with advancements in Raman spectroscopy

5.2.2.3 Lack of awareness regarding potential applications of Raman spectroscopy among end users

5.2.2.4 Unsuitability of Raman spectroscopy with metals and alloys

FIGURE 22 RAMAN SPECTROSCOPY MARKET: IMPACT ANALYSIS OF RESTRAINTS

5.2.3 OPPORTUNITIES

5.2.3.1 Rising demand for cloud-based spectroscopy

5.2.3.2 Rising demand for process analytical technology (PAT) in pharmaceutical industry

5.2.3.3 Increasing demand for Raman spectroscopy in carbon materials application

5.2.3.4 Rising demand for Raman spectroscopy in semiconductor industry

5.2.3.5 Increasing research and development (R&D) expenditure on Raman spectroscopy

FIGURE 23 RAMAN SPECTROSCOPY MARKET: IMPACT ANALYSIS OF OPPORTUNITIES

5.2.4 CHALLENGES

5.2.4.1 Lack of improvements in Raman spectrometer design

5.2.4.2 Lack of development of low-cost, highly efficient Raman spectrometers

FIGURE 24 RAMAN SPECTROSCOPY MARKET: IMPACT ANALYSIS OF CHALLENGES

5.3 VALUE CHAIN ANALYSIS

FIGURE 25 RAMAN SPECTROSCOPY MARKET: VALUE CHAIN ANALYSIS

5.4 ECOSYSTEM ANALYSIS

FIGURE 26 RAMAN SPECTROSCOPY MARKET: ECOSYSTEM ANALYSIS

TABLE 2 COMPANIES AND THEIR ROLE IN ECOSYSTEM

5.5 AVERAGE SELLING PRICE (ASP) ANALYSIS

TABLE 3 AVERAGE SELLING PRICE (ASP) OF RAMAN SPECTROSCOPY INSTRUMENTS

TABLE 4 TENTATIVE PRICING OF RAMAN SPECTROSCOPY INSTRUMENTS

FIGURE 27 AVERAGE PRICE TREND

FIGURE 28 AVERAGE SELLING PRICE OF RAMAN SPECTROSCOPY INSTRUMENTS

5.6 TRENDS/DISRUPTIONS IMPACTING MARKET PLAYERS AND RAW MATERIAL SUPPLIERS

FIGURE 29 REVENUE SHIFTS AND NEW REVENUE POCKETS FOR RAMAN SPECTROSCOPY MARKET PLAYERS

5.7 TECHNOLOGY ANALYSIS

5.7.1 INELASTIC NEUTRON SCATTERING (INS)

5.7.2 FLUORESCENCE SPECTROSCOPY

5.7.3 INFRARED SPECTROSCOPY

5.7.4 SPATIALLY OFFSET RAMAN SPECTROSCOPY (SORS)

5.7.5 RAMAN OPTICAL ACTIVITY (ROA)

5.7.6 ELECTRON MICROSCOPY

5.7.7 CLOUD-BASED SPECTROSCOPY

5.7.8 PROCESS ANALYTICAL TECHNOLOGY (PAT)

5.8 PORTER'S FIVE FORCES ANALYSIS

TABLE 5 RAMAN SPECTROSCOPY MARKET: PORTER'S FIVE FORCES ANALYSIS

FIGURE 30 RAMAN SPECTROSCOPY MARKET: PORTER'S FIVE FORCES ANALYSIS

5.8.1 THREAT OF NEW ENTRANTS

5.8.2 THREAT OF SUBSTITUTES

5.8.3 BARGAINING POWER OF SUPPLIERS

5.8.4 BARGAINING POWER OF BUYERS

5.8.5 INTENSITY OF COMPETITIVE RIVALRY

5.9 KEY STAKEHOLDERS AND BUYING CRITERIA

5.9.1 KEY STAKEHOLDERS IN BUYING PROCESS

FIGURE 31 INFLUENCE OF STAKEHOLDERS ON BUYING PROCESS, BY APPLICATION

TABLE 6 INFLUENCE OF STAKEHOLDERS ON BUYING PROCESS, BY APPLICATION (%)

5.10 BUYING CRITERIA

FIGURE 32 KEY BUYING CRITERIA, BY APPLICATION

TABLE 7 KEY BUYING CRITERIA, BY APPLICATION

5.11 CASE STUDY ANALYSIS

5.11.1 DEVELOPMENT OF NEW RAMAN MICRO-SPECTROSCOPY TECHNIQUE THAT CAN IMAGE POLYMER PHASE DISTRIBUTIONS

5.11.2 RESEARCH AND DEVELOPMENT OF GROUND-BREAKING BIOSENSOR PLATFORM FOR EARLY-STAGE CANCER DIAGNOSIS

5.11.3 IMPLEMENTATION OF TRANSMISSION RAMAN SPECTROSCOPY FOR FAST CONTENT UNIFORMITY TESTING

5.11.4 ENHANCEMENTS IN RAMAN MEASUREMENTS USING HIGH-THROUGHPUT VIRTUAL SLIT SPECTROMETERS

5.11.5 USE OF RAMAN SPECTROSCOPY IN ARCHAEOLOGICAL SITES

5.12 TRADE DATA ANALYSIS

5.12.1 IMPORT SCENARIO

TABLE 8 IMPORT DATA, BY COUNTRY, 2018–2022 (USD MILLION)

5.12.2 EXPORT SCENARIO

TABLE 9 EXPORT DATA, BY COUNTRY, 2018–2022 (USD MILLION)

5.13 PATENT ANALYSIS

TABLE 10 RAMAN SPECTROSCOPY MARKET: NOTABLE PATENTS, 2020–2023

FIGURE 33 NUMBER OF PATENTS GRANTED PER YEAR, 2013–2022

TABLE 11 NUMBER OF PATENTS REGISTERED RELATED TO RAMAN SPECTROSCOPY MARKET IN LAST 10 YEARS

FIGURE 34 TOP 10 COMPANIES WITH HIGHEST NUMBER OF PATENT

APPLICATIONS IN LAST 10 YEARS

5.14 KEY CONFERENCES AND EVENTS, 2023–2024

TABLE 12 RAMAN SPECTROSCOPY MARKET: CONFERENCES AND EVENTS

5.15 STANDARDS AND REGULATORY LANDSCAPE

5.15.1 TARIFFS AND REGULATIONS

5.15.1.1 Tariffs

5.15.1.2 Regulatory compliance

5.16 REGULATORY SCENARIO

5.16.1 NORTH AMERICA

5.16.2 EUROPE

5.16.3 ASIA PACIFIC

5.16.4 ROW

5.16.5 REGULATIONS

5.16.6 STANDARDS

6 RAMAN SPECTROSCOPY MARKET, BY TYPE

6.1 INTRODUCTION

FIGURE 35 RAMAN SPECTROSCOPY MARKET, BY TYPE

6.2 BENCHTOP

6.2.1 WIDELY USED IN FORENSIC, PHARMACEUTICAL, NANOTECHNOLOGY, AND ACADEMIC RESEARCH APPLICATIONS

6.3 PORTABLE

6.3.1 ENABLES USERS TO MAKE REAL-TIME DECISIONS

TABLE 13 SPECIFICATION COMPARISON BETWEEN BENCHTOP AND PORTABLE RAMAN SPECTROSCOPY

7 RAMAN SPECTROSCOPY MARKET, BY INSTRUMENT

7.1 INTRODUCTION

FIGURE 36 HANDHELD & PORTABLE RAMAN SEGMENT TO REGISTER HIGHEST CAGR DURING FORECAST PERIOD

TABLE 14 RAMAN SPECTROSCOPY MARKET, BY INSTRUMENT, 2019–2022 (USD MILLION)

TABLE 15 RAMAN SPECTROSCOPY MARKET, BY INSTRUMENT, 2023–2028 (USD MILLION)

TABLE 16 RAMAN SPECTROSCOPY MARKET, BY INSTRUMENT, 2019–2022 (THOUSAND UNITS)

TABLE 17 RAMAN SPECTROSCOPY MARKET, BY INSTRUMENT, 2023–2028

(THOUSAND UNITS)

7.2 MICROSCOPY RAMAN

7.2.1 ONE OF BEST INSTRUMENTS TO IDENTIFY PIGMENTS

TABLE 18 MICROSCOPY RAMAN: RAMAN SPECTROSCOPY MARKET, BY APPLICATION, 2019–2022 (USD MILLION)

TABLE 19 MICROSCOPY RAMAN: RAMAN SPECTROSCOPY MARKET, BY APPLICATION, 2023–2028 (USD MILLION)

7.3 FT RAMAN

7.3.1 DOES NOT REQUIRE SPECIALIZED SAMPLE PRE-TREATMENT

TABLE 20 FT RAMAN: RAMAN SPECTROSCOPY MARKET, BY APPLICATION, 2019–2022 (USD MILLION)

TABLE 21 FT RAMAN: RAMAN SPECTROSCOPY MARKET, BY APPLICATION, 2023–2028 (USD MILLION)

7.4 HANDHELD & PORTABLE RAMAN

7.4.1 INCREASINGLY USED IN PHARMACEUTICAL AND CHEMICAL INDUSTRIES

TABLE 22 HANDHELD & PORTABLE RAMAN: RAMAN SPECTROSCOPY MARKET, BY APPLICATION, 2019–2022 (USD MILLION)

TABLE 23 HANDHELD & PORTABLE RAMAN: RAMAN SPECTROSCOPY MARKET, BY APPLICATION, 2023–2028 (USD MILLION)

7.5 OTHERS

7.5.1 DISPERSIVE RAMAN

TABLE 24 SPECIFICATION COMPARISON BETWEEN FT RAMAN AND DISPERSIVE RAMAN SPECTROSCOPY INSTRUMENTS

7.5.2 NON-DISPERSIVE RAMAN

7.5.3 PROBE RAMAN

TABLE 25 OTHERS: RAMAN SPECTROSCOPY MARKET, BY APPLICATION, 2019–2022 (USD MILLION)

TABLE 26 OTHERS: RAMAN SPECTROSCOPY MARKET, BY APPLICATION, 2023–2028 (USD MILLION)

8 RAMAN SPECTROSCOPY MARKET, BY SAMPLING TECHNIQUE

8.1 INTRODUCTION

FIGURE 37 SURFACE-ENHANCED RAMAN SCATTERING SEGMENT TO HOLD LARGEST MARKET SHARE DURING FORECAST PERIOD

TABLE 27 RAMAN SPECTROSCOPY MARKET, BY SAMPLING TECHNIQUE, 2019–2022 (USD MILLION)

TABLE 28 RAMAN SPECTROSCOPY MARKET, BY SAMPLING TECHNIQUE, 2023–2028 (USD MILLION)

8.2 SURFACE-ENHANCED RAMAN SCATTERING (SERS)

8.2.1 AMPLIFIES RAMAN SIGNALS FROM MOLECULES BY SEVERAL ORDERS OF MAGNITUDE, ALLOWING THEM TO UNDERGO SCATTERING WITH MUCH HIGHER EFFICIENCIES

8.3 TIP-ENHANCED RAMAN SCATTERING (TERS)

8.3.1 WELL-SUITED FOR INVESTIGATING SAMPLES IN AQUEOUS MEDIUM

8.4 OTHERS

9 RAMAN SPECTROSCOPY MARKET, BY APPLICATION

9.1 INTRODUCTION

FIGURE 38 RAMAN SPECTROSCOPY MARKET, BY APPLICATION

FIGURE 39 PHARMACEUTICALS SEGMENT TO HOLD LARGEST MARKET SHARE DURING FORECAST PERIOD

TABLE 29 RAMAN SPECTROSCOPY MARKET, BY APPLICATION, 2019–2022 (USD MILLION)

TABLE 30 RAMAN SPECTROSCOPY MARKET, BY APPLICATION, 2023–2028 (USD MILLION)

9.2 PHARMACEUTICALS

9.2.1 RISING USE OF RAMAN SPECTROSCOPY IN SOLID-STATE PHARMACEUTICAL MANUFACTURING

TABLE 31 PHARMACEUTICALS: RAMAN SPECTROSCOPY MARKET, BY INSTRUMENT, 2019–2022 (USD MILLION)

TABLE 32 PHARMACEUTICALS: RAMAN SPECTROSCOPY MARKET, BY INSTRUMENT, 2023–2028 (USD MILLION)

FIGURE 40 ASIA PACIFIC TO DOMINATE RAMAN SPECTROSCOPY MARKET FOR PHARMACEUTICALS SEGMENT FROM 2023 TO 2028

TABLE 33 PHARMACEUTICALS: RAMAN SPECTROSCOPY MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 34 PHARMACEUTICALS: RAMAN SPECTROSCOPY MARKET, BY REGION, 2023–2028 (USD MILLION)

TABLE 35 PHARMACEUTICALS: NORTH AMERICA RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 36 PHARMACEUTICALS: NORTH AMERICA RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 37 PHARMACEUTICALS: EUROPE RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 38 PHARMACEUTICALS: EUROPE RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 39 PHARMACEUTICALS: ASIA PACIFIC RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 40 PHARMACEUTICALS: ASIA PACIFIC RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 41 PHARMACEUTICALS: ROW RAMAN SPECTROSCOPY MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 42 PHARMACEUTICALS: ROW RAMAN SPECTROSCOPY MARKET, BY REGION, 2023–2028 (USD MILLION)

9.3 MATERIALS SCIENCE

9.3.1 POWERFUL TECHNIQUE TO EXTRACT PHYSICAL AND CHEMICAL INFORMATION ABOUT MATERIALS

TABLE 43 MATERIALS SCIENCE: RAMAN SPECTROSCOPY MARKET, BY INSTRUMENT, 2019–2022 (USD MILLION)

TABLE 44 MATERIALS SCIENCE: RAMAN SPECTROSCOPY MARKET, BY INSTRUMENT, 2023–2028 (USD MILLION)

TABLE 45 MATERIALS SCIENCE: RAMAN SPECTROSCOPY MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 46 MATERIALS SCIENCE: RAMAN SPECTROSCOPY MARKET, BY REGION, 2023–2028 (USD MILLION)

TABLE 47 MATERIALS SCIENCE: NORTH AMERICA RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 48 MATERIALS SCIENCE: NORTH AMERICA RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 49 MATERIALS SCIENCE: EUROPE RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 50 MATERIALS SCIENCE: EUROPE RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 51 MATERIALS SCIENCE: ASIA PACIFIC RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 52 MATERIALS SCIENCE: ASIA PACIFIC RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 53 MATERIALS SCIENCE: ROW RAMAN SPECTROSCOPY MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 54 MATERIALS SCIENCE: ROW RAMAN SPECTROSCOPY MARKET, BY REGION, 2023–2028 (USD MILLION)

9.4 LIFE SCIENCES

9.4.1 PROVIDES VALUABLE INSIGHTS INTO CHARACTERISTICS OF DIFFERENT LIFE SCIENCES MATERIALS

TABLE 55 LIFE SCIENCES: RAMAN SPECTROSCOPY MARKET, BY INSTRUMENT,

2019–2022 (USD MILLION)

TABLE 56 LIFE SCIENCES: RAMAN SPECTROSCOPY MARKET, BY INSTRUMENT, 2023–2028 (USD MILLION)

FIGURE 41 ASIA PACIFIC TO DOMINATE RAMAN SPECTROSCOPY MARKET FOR LIFE SCIENCES SEGMENT DURING FORECAST PERIOD

TABLE 57 LIFE SCIENCES: RAMAN SPECTROSCOPY MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 58 LIFE SCIENCES: RAMAN SPECTROSCOPY MARKET, BY REGION, 2023–2028 (USD MILLION)

TABLE 59 LIFE SCIENCES: NORTH AMERICA RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 60 LIFE SCIENCES: NORTH AMERICA RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 61 LIFE SCIENCES: EUROPE RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 62 LIFE SCIENCES: EUROPE RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 63 LIFE SCIENCES: ASIA PACIFIC RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 64 LIFE SCIENCES: ASIA PACIFIC RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 65 LIFE SCIENCES: ROW RAMAN SPECTROSCOPY MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 66 LIFE SCIENCES: ROW RAMAN SPECTROSCOPY MARKET, BY REGION, 2023–2028 (USD MILLION)

9.5 CARBON MATERIALS

9.5.1 USED TO RESEARCH, DEVELOP, AND CONTROL QUALITY OF CARBON MATERIALS

TABLE 67 CARBON MATERIALS: RAMAN SPECTROSCOPY MARKET, BY INSTRUMENT, 2019–2022 (USD MILLION)

TABLE 68 CARBON MATERIALS: RAMAN SPECTROSCOPY MARKET, BY INSTRUMENT, 2023–2028 (USD MILLION)

TABLE 69 CARBON MATERIALS: RAMAN SPECTROSCOPY MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 70 CARBON MATERIALS: RAMAN SPECTROSCOPY MARKET, BY REGION, 2023–2028 (USD MILLION)

TABLE 71 CARBON MATERIALS: NORTH AMERICA RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 72 CARBON MATERIALS: NORTH AMERICA RAMAN SPECTROSCOPY

MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 73 CARBON MATERIALS: EUROPE RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 74 CARBON MATERIALS: EUROPE RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 75 CARBON MATERIALS: ASIA PACIFIC RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 76 CARBON MATERIALS: ASIA PACIFIC RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 77 CARBON MATERIALS: ROW RAMAN SPECTROSCOPY MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 78 CARBON MATERIALS: ROW RAMAN SPECTROSCOPY MARKET, BY REGION, 2023–2028 (USD MILLION)

9.6 SEMICONDUCTORS

9.6.1 USED TO CHARACTERIZE AND GENERATE IMAGES OF ALL SEMICONDUCTOR TYPES

TABLE 79 SEMICONDUCTORS: RAMAN SPECTROSCOPY MARKET, BY INSTRUMENT, 2019–2022 (USD MILLION)

TABLE 80 SEMICONDUCTORS: RAMAN SPECTROSCOPY MARKET, BY INSTRUMENT, 2023–2028 (USD MILLION)

FIGURE 42 ASIA PACIFIC TO DOMINATE RAMAN SPECTROSCOPY MARKET FOR SEMICONDUCTORS SEGMENT FROM 2023 TO 2028

TABLE 81 SEMICONDUCTORS: RAMAN SPECTROSCOPY MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 82 SEMICONDUCTORS: RAMAN SPECTROSCOPY MARKET, BY REGION, 2023–2028 (USD MILLION)

TABLE 83 SEMICONDUCTORS: NORTH AMERICA RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 84 SEMICONDUCTORS: NORTH AMERICA RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 85 SEMICONDUCTORS: EUROPE RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 86 SEMICONDUCTORS: EUROPE RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 87 SEMICONDUCTORS: ASIA PACIFIC RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 88 SEMICONDUCTORS: ASIA PACIFIC RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 89 SEMICONDUCTORS: ROW RAMAN SPECTROSCOPY MARKET, BY

REGION, 2019–2022 (USD MILLION)

TABLE 90 SEMICONDUCTORS: ROW RAMAN SPECTROSCOPY MARKET, BY REGION, 2023–2028 (USD MILLION)

9.7 OTHERS

9.7.1 AGRICULTURE

9.7.2 CHEMICAL

9.7.3 FORENSIC

9.7.4 COSMETIC

TABLE 91 OTHERS: RAMAN SPECTROSCOPY MARKET, BY INSTRUMENT, 2019–2022 (USD MILLION)

TABLE 92 OTHERS: RAMAN SPECTROSCOPY MARKET, BY INSTRUMENT, 2023–2028 (USD MILLION)

TABLE 93 OTHERS: RAMAN SPECTROSCOPY MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 94 OTHERS: RAMAN SPECTROSCOPY MARKET, BY REGION, 2023–2028 (USD MILLION)

TABLE 95 OTHERS: NORTH AMERICA RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 96 OTHERS: NORTH AMERICA RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 97 OTHERS: EUROPE RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 98 OTHERS: EUROPE RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 99 OTHERS: ASIA PACIFIC RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 100 OTHERS: ASIA PACIFIC RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 101 OTHERS: ROW RAMAN SPECTROSCOPY MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 102 OTHERS: ROW RAMAN SPECTROSCOPY MARKET, BY REGION, 2023–2028 (USD MILLION)

10 RAMAN SPECTROSCOPY MARKET, BY REGION

10.1 INTRODUCTION

FIGURE 43 RAMAN SPECTROSCOPY MARKET, BY REGION

FIGURE 44 ASIA PACIFIC RAMAN SPECTROSCOPY MARKET TO REGISTER HIGHEST CAGR DURING FORECAST PERIOD

TABLE 103 RAMAN SPECTROSCOPY MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 104 RAMAN SPECTROSCOPY MARKET, BY REGION, 2023–2028 (USD MILLION)

10.2 NORTH AMERICA

FIGURE 45 NORTH AMERICA RAMAN SPECTROSCOPY MARKET, BY COUNTRY

FIGURE 46 NORTH AMERICA: SNAPSHOT OF RAMAN SPECTROSCOPY MARKET

TABLE 105 NORTH AMERICA: RAMAN SPECTROSCOPY MARKET, BY APPLICATION, 2019–2022 (USD MILLION)

TABLE 106 NORTH AMERICA: RAMAN SPECTROSCOPY MARKET, BY APPLICATION, 2023–2028 (USD MILLION)

FIGURE 47 US TO LEAD NORTH AMERICAN RAMAN SPECTROSCOPY MARKET DURING FORECAST PERIOD

TABLE 107 NORTH AMERICA: RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 108 NORTH AMERICA: RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

10.2.1 US

10.2.1.1 Large presence of Raman spectroscopy instrument manufacturing companies

10.2.2 CANADA

10.2.2.1 High investments in research and development (R&D) by government and non-government organizations

10.2.3 MEXICO

10.2.3.1 Increasing investments in healthcare sector

10.2.4 NORTH AMERICA: RECESSION IMPACT

10.3 EUROPE

FIGURE 48 EUROPE RAMAN SPECTROSCOPY MARKET, BY COUNTRY

FIGURE 49 EUROPE: SNAPSHOT OF RAMAN SPECTROSCOPY MARKET

TABLE 109 EUROPE: RAMAN SPECTROSCOPY MARKET, BY APPLICATION, 2019–2022 (USD MILLION)

TABLE 110 EUROPE: RAMAN SPECTROSCOPY MARKET, BY APPLICATION, 2023–2028 (USD MILLION)

FIGURE 50 UK TO RECORD HIGHEST CAGR IN EUROPEAN RAMAN SPECTROSCOPY MARKET DURING FORECAST PERIOD

TABLE 111 EUROPE: RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 112 EUROPE: RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

10.3.1 UK

10.3.1.1 Rising investments in facilitation of research and development (R&D) centers

10.3.2 GERMANY

10.3.2.1 Increasing demand for Raman spectroscopy in life sciences applications

10.3.3 FRANCE

10.3.3.1 Significant presence of laboratories specializing in Raman spectroscopy

10.3.4 REST OF EUROPE

10.3.5 EUROPE: RECESSION IMPACT

10.4 ASIA PACIFIC

FIGURE 51 ASIA PACIFIC RAMAN SPECTROSCOPY MARKET, BY COUNTRY

FIGURE 52 ASIA PACIFIC: SNAPSHOT OF RAMAN SPECTROSCOPY MARKET

TABLE 113 ASIA PACIFIC: RAMAN SPECTROSCOPY MARKET, BY APPLICATION, 2019–2022 (USD MILLION)

TABLE 114 ASIA PACIFIC: RAMAN SPECTROSCOPY MARKET, BY APPLICATION, 2023–2028 (USD MILLION)

FIGURE 53 CHINA TO DOMINATE ASIA PACIFIC RAMAN SPECTROSCOPY MARKET DURING FORECAST PERIOD

TABLE 115 ASIA PACIFIC: RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 116 ASIA PACIFIC: RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

10.4.1 CHINA

10.4.1.1 Rising demand for Raman spectroscopy in pharmaceuticals, life sciences, and materials science applications

10.4.2 JAPAN

10.4.2.1 Increasing healthcare expenditure

10.4.3 SOUTH KOREA

10.4.3.1 Large presence of universities and research institutes using Raman spectroscopy

10.4.4 INDIA

10.4.4.1 Expanding pharmaceutical industry

10.4.5 REST OF ASIA PACIFIC

10.4.6 ASIA PACIFIC: RECESSION IMPACT

10.5 ROW

FIGURE 54 ROW RAMAN SPECTROSCOPY MARKET, BY REGION

TABLE 117 ROW: RAMAN SPECTROSCOPY MARKET, BY APPLICATION, 2019–2022 (USD MILLION)

TABLE 118 ROW: RAMAN SPECTROSCOPY MARKET, BY APPLICATION,

2023–2028 (USD MILLION)

FIGURE 55 MIDDLE EAST & AFRICA HELD LARGER SHARE OF RAMAN SPECTROSCOPY MARKET IN 2022

TABLE 119 ROW: RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 120 ROW: RAMAN SPECTROSCOPY MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

10.5.1 MIDDLE EAST & AFRICA

10.5.1.1 Rising adoption of Raman spectrometers by research institutes, distributors, and universities

10.5.2 SOUTH AMERICA

10.5.2.1 Increasing investments in pharmaceutical and life science research

10.5.3 ROW: RECESSION IMPACT

11 COMPETITIVE LANDSCAPE

11.1 OVERVIEW

11.2 MARKET EVALUATION FRAMEWORK

FIGURE 56 KEY STRATEGIES UNDERTAKEN BY LEADING PLAYERS IN RAMAN SPECTROSCOPY MARKET FROM 2019 TO 2023

11.2.1 PRODUCT PORTFOLIO

11.2.2 REGIONAL FOCUS

11.2.3 MANUFACTURING FOOTPRINT

11.2.4 ORGANIC/INORGANIC STRATEGIES

11.3 MARKET SHARE AND RANKING ANALYSIS

TABLE 121 RAMAN SPECTROSCOPY MARKET: DEGREE OF COMPETITION

FIGURE 57 MARKET SHARE OF TOP FIVE PLAYERS OFFERING RAMAN SPECTROSCOPY

11.4 FIVE-YEAR COMPANY REVENUE ANALYSIS

FIGURE 58 FIVE-YEAR REVENUE ANALYSIS OF KEY COMPANIES

11.5 COMPANY EVALUATION QUADRANT, 2022

FIGURE 59 RAMAN SPECTROSCOPY MARKET (GLOBAL): COMPANY EVALUATION QUADRANT, 2022

11.5.1 STARS

11.5.2 EMERGING LEADERS

11.5.3 PERVASIVE PLAYERS

11.5.4 PARTICIPANTS

11.6 COMPETITIVE BENCHMARKING

TABLE 122 COMPANY FOOTPRINT (10 COMPANIES)

TABLE 123 APPLICATION: COMPANY FOOTPRINT

TABLE 124 REGION: COMPANY FOOTPRINT

11.7 STARTUP/SME EVALUATION QUADRANT, 2022

FIGURE 60 RAMAN SPECTROSCOPY (GLOBAL): STARTUP/SME EVALUATION QUADRANT, 2022

11.7.1 PROGRESSIVE COMPANIES

11.7.2 RESPONSIVE COMPANIES

11.7.3 DYNAMIC COMPANIES

11.7.4 STARTING BLOCKS

TABLE 125 RAMAN SPECTROSCOPY MARKET: DETAILED LIST OF KEY STARTUPS/SMES

TABLE 126 RAMAN SPECTROSCOPY MARKET: COMPETITIVE BENCHMARKING OF KEY STARTUP/SMES

11.8 COMPETITIVE SCENARIO

11.8.1 PRODUCT LAUNCHES

TABLE 127 PRODUCTS LAUNCHES, APRIL 2020–FEBRUARY 2023

11.8.2 DEALS

TABLE 128 DEALS, MAY 2020–MARCH 2023

12 COMPANY PROFILES

(Business overview, Products/Solutions/Services offered, Recent Developments, MNM view)*

12.1 KEY PLAYERS

12.1.1 THERMO FISHER SCIENTIFIC INC.

TABLE 129 THERMO FISHER SCIENTIFIC INC.: COMPANY OVERVIEW

FIGURE 61 THERMO FISHER SCIENTIFIC INC.: COMPANY SNAPSHOT

12.1.2 AGILENT TECHNOLOGIES, INC.

TABLE 130 AGILENT TECHNOLOGIES, INC.: COMPANY OVERVIEW

FIGURE 62 AGILENT TECHNOLOGIES, INC.: COMPANY SNAPSHOT

12.1.3 BRUKER

TABLE 131 BRUKER: COMPANY OVERVIEW

FIGURE 63 BRUKER: COMPANY SNAPSHOT

12.1.4 METTLER TOLEDO

TABLE 132 METTLER TOLEDO: COMPANY OVERVIEW

FIGURE 64 METTLER TOLEDO: COMPANY SNAPSHOT

12.1.5 RENISHAW PLC

TABLE 133 RENISHAW PLC: COMPANY OVERVIEW

FIGURE 65 RENISHAW PLC: COMPANY SNAPSHOT

12.1.6 HORIBA, LTD.

TABLE 134 HORIBA, LTD.: BUSINESS OVERVIEW

FIGURE 66 HORIBA, LTD.: COMPANY SNAPSHOT

12.1.7 METROHM AG

TABLE 135 METROHM AG: COMPANY OVERVIEW

12.1.8 ENDRESS+HAUSER GROUP SERVICES AG

TABLE 136 ENDRESS+HAUSER GROUP SERVICES AG: COMPANY OVERVIEW

12.1.9 RIGAKU CORPORATION

TABLE 137 RIGAKU CORPORATION: COMPANY OVERVIEW

12.1.10 PERKINELMER INC.

TABLE 138 PERKINELMER INC.: COMPANY OVERVIEW

FIGURE 67 PERKINELMER INC.: COMPANY SNAPSHOT

*Details on Business overview, Products/Solutions/Services offered, Recent Developments, MNM view might not be captured in case of unlisted companies.

12.2 OTHER PLAYERS

12.2.1 ANTON PAAR

12.2.2 TORNADO SPECTRAL SYSTEMS

12.2.3 OXFORD INSTRUMENTS

12.2.4 OCEAN INSIGHT

12.2.5 HAMAMATSU PHOTONICS

12.2.6 B&W TEK

12.2.7 ENHANCED SPECTROMETRY, INC.

12.2.8 PHOTON SYSTEMS, INC.

12.2.9 LASER DETECT SYSTEM

12.2.10 OSTEC

12.2.11 SMITHS DETECTION

12.2.12 JASCO

12.2.13 TSI

12.2.14 ZOLIX

12.2.15 REAL TIME ANALYZERS

13 APPENDIX

13.1 INSIGHTS FROM INDUSTRY EXPERTS

13.2 DISCUSSION GUIDE

13.3 KNOWLEDGESTORE: MARKETSandMARKETS' SUBSCRIPTION PORTAL

13.4 CUSTOMIZATION OPTIONS

13.5 RELATED REPORTS

13.6 AUTHOR DETAILS

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