

Traditional and Emerging Spectroscopy Techniques in Life Sciences

https://marketpublishers.com/r/T4E561325AEEN.html

Date: March 2019

Pages: 251

Price: US\$ 2,750.00 (Single User License)

ID: T4E561325AEEN

Abstracts

REPORT SCOPE:

The study covers atomic, mass and molecular spectroscopy. It also covers the research institution, pharmaceutical and biotechnology and other end-user market segments. The main geographical markets—North America, Europe, Asia and Rest of World (ROW)—are examined.

Technology status and market driving forces are discussed and analysed. Factors that influence each market are also highlighted, including the forces driving growth, industry alliances and acquisitions, applications in diagnostics and drug development and testing, food and beverage testing and other customer needs and competitive trends.

Key industry acquisitions and strategic alliances are given for the three-year period from 2015 through June 2018.

This report also examines the main patent trends within the industry and profiles 30 of the major companies in the spectroscopy market.

REPORT INCLUDES:

56 data tables and 113 additional tables

An overview of the spectroscopy in biosciences, their instruments and global markets

Analyses of global market trends, with data from 2017 to 2018, and projections



of CAGRs through 2023

Detailed description of ultraviolet and visible absorption spectroscopy (UV-VIS), infrared absorption spectroscopy (IRS), raman spectroscopy, mass spectrometry (MS) and nuclear magnetic resonance spectroscopy (NMR)

Discussion about background, key trends and market opportunity analysis

Profiles of major companies of the industry, including Bruker Corp., Danaher Corp., Ionsense Inc., JEOL Ltd. and Zurich Instruments AG



Contents

CHAPTER 1 INTRODUCTION

Study Goals and Objectives
Reasons for Doing This Study
Scope of Report
Information Sources
Methodology
Geographic Breakdown
Analyst's Credentials
BCC Custom Research
Related BCC Research Reports

CHAPTER 2 SUMMARY AND HIGHLIGHTS

CHAPTER 3 MARKET AND TECHNOLOGY BACKGROUND

Scope of the Report

Spectroscopy Technologies Overview

Atomic Spectroscopy

Mass Spectroscopy

Molecular Spectroscopy

Spectroscopy in Biotechnology

Precision Medicine

Application Overview

Drug Development and Testing

Environmental

Clinical and Diagnostic

Food and Beverage Testing

Other Applications

End User Overview

Research Institutions

Pharmaceutical and Biotechnology Industries

Other End Users

New Developments in Spectroscopic Applications

Study of Interstitial Fluid (Interstitium)

Critical-Depth Raman Spectroscopy Enables Home-Use Non-Invasive Glucose

Monitoring with the use of interstitium



Nanoparticles Application for Cancer Detection Using Surface Enhanced Raman Spectroscopy

Application of Nanoparticles in Cancer Detection by Raman Scattering Based Techniques

Vibrational Spectroscopy for Improved Analysis of Protein

Simultaneous Fitting of Absorption Spectra and Their Second Derivatives for an Improved Analysis of Protein Infrared Spectra

Fluorescence Detection to Bioinorganic Systems Using X-Ray Absorption Spectroscopy Role of X-Ray Spectroscopy in Understanding the Geometric and Electronic Structure of Nitrogenase

Raman Spectroscopy for Characterizing Aggregation of Therapeutic Proteins Combined Dynamic Light Scattering and Raman Spectroscopy Approach for Characterizing the Aggregation of Therapeutic Proteins Investment Analysis

Drivers in the Market

Demand for Molecular Spectroscopy in Environmental Screening

Adoption of Spectroscopic-based Analytical Methods in the Pharmaceutical and Biotechnology Industries

Surging Demand for Sophisticated Equipment for Measurement and High-performance Testing

Adoption of Spectrometric Analysis in Clinical and Toxicological Applications Technological Advances in Spectroscopy Market

Competitive Landscape and Major Players by Region

Market Share by Companies across Various Technologies

Competitive Landscape

Major Market Players, by Region

CHAPTER 4 MARKET BREAKDOWN BY TECHNOLOGY

Atomic Spectroscopy

Atomic Emission Spectroscopy

Atomic Absorption Spectroscopy

Atomic Fluorescence Spectroscopy

Applications of Atomic Spectroscopy

Mass Spectrometry

Market Drivers

Molecular Spectroscopy

Nuclear Magnetic Resonance (NMR) Spectroscopy

UV-Visible Spectroscopy



Infrared (IR) Spectroscopy
Near-Infrared Spectroscopy
Raman Spectroscopy
Fluorescence Spectroscopy
Color Measurement Spectroscopy

CHAPTER 5 MARKET BREAKDOWN BY APPLICATION

Drug Development and Testing

NMR Molecular Technology in Drug Development and Testing

Mass Spectroscopy Technology in Drug Development and Testing

Demand for Drug Discovery and Development

Research and the Pharmaceutical Industry

Environmental

Air Pollution Spectrometry

Use of Spectroscopy in Water

Clinical and Diagnostics

Technological Developments and Advances

Clinical Trials in Spectroscopy

Increasing Prevalence of Chronic Diseases

Food and Beverage Testing

Other Applications

CHAPTER 6 MARKET BREAKDOWN BY END USER

Research Institutes
Application of Raman Spectroscopy in Breast Cancer
Atomic Spectroscopy in Research Institutes
Applications of XRF Spectrometers in Medical Science
Applications of XRF Spectrometers in Dental and Medical Analyses
Common Research Uses for XRF Technology in Dental Applications
Major Drivers
Pharmaceutical and Biotechnology, Healthcare
Other End Users
Forensics Laboratories
Food and Beverage Testing Industries

CHAPTER 7 MARKET BREAKDOWN BY REGION



North America

United States

Canada

Europe

United Kingdom

France

Germany

Italy

Rest of Europe

Asia-Pacific

China

India

Japan

Australia

Rest of Asia-Pacific

Rest of the World (ROW)

Latin America

Middle East and Africa

CHAPTER 8 PATENT REVIEW/ NEW DEVELOPMENTS

Selected U.S. Spectroscopy Patents
Selected European Spectroscopy Patents
Selected Japanese Spectroscopy Patents

CHAPTER 9 SPECTROSCOPY INDUSTRY STRUCTURE

Spectroscopy Industry Structure

R&D

Suppliers

Manufacturing

Distribution

Sales and Service

End Users

Opportunities in Supply Chain

Blockchain and Internet of Things

Robotics

Third-Party Logistics

Major Players and Their Products



CHAPTER 10 COMPANY PROFILES

AB SCIEX

ADVION INC.

AGILENT TECHNOLOGIES

AMETEK INC.

AURORA BIOMED INC.

AVANTES

B&W TEK INC.

BERGMANN MESSGERAETE ENTWICKLUNG (BME)

BIO-RAD LABORATORIES

BRUKER CORP.

DANAHER CORP.

DANI INSTRUMENTS SPA

EVANS ANALYTICAL GROUP

EXTREL

HIPERSCAN GMBH

HORIBA

HITACHI HIGH TECHNOLOGIES AMERICA, INC.

IONSENSE INC.

JASCO INC.

JEOL LTD.

KORE TECHNOLOGY LTD.

MKS INSTRUMENTS

OCEAN OPTICS

PENDAR TECHNOLOGIES, LLC

PERKINELMER INC.

PFEIFFER VACUUM GMBH

SHIMADZU CORP.

THERMO FISHER SCIENTIFIC

WATERS CORP.

ZURICH INSTRUMENTS AG



List Of Tables

LIST OF TABLES

Summary Table: Global Market for Spectroscopy, by Technology/Application/End

User/Region, Through 2023

Table 1: Scope of the Report

Table 2: Comparison of Molecular Spectroscopy Techniques

Table 3: Comparison of Spectroscopy Techniques

Table 4: Investments in Spectroscopy

Table 5: Types of Environmental Analytical Instrumentation

Table 6: UV-Visible Spectrophotometric Procedures Used in Quantitative Analysis of

Drugs in Pharmaceutical Formulations

Table 7: Drugs in the Pipeline for Selected Causes, 2017

Table 8: Investments in Biotechnology

Table 9: Investments in Newborn Screening

Table 10: Major Market Players, by Region

Table 11: Summary of Spectroscopy Technology

Table 12: Global Spectroscopy Market, by Technology, Through 2023

Table 13: Global Atomic Spectroscopy Market, by Region, Through 2023

Table 14: Detection Limits of Atomic Spectroscopy Techniques

Table 15: Comparison of ICP-OES, Flame AAS and GFAAS

Table 16: Recent Product Launches Related to Atomic Spectroscopy

Table 17: Determination of Heavy Metals in Herbal Drugs

Table 18: Common Applications and Fields that Use Mass Spectrometry

Table 19: Mass Spectrometry Products

Table 20: R&D Process

Table 21: Top 20 Companies in Pharmaceutical R&D Spending, 2016

Table 22: Global Mass Spectroscopy Market, by Region, Through 2023

Table 23: Regulatory Bodies for Food and Drug Safety

Table 24: Global Molecular Spectroscopy Market, by Region, Through 2023

Table 25: Global Molecular Spectroscopy Market, by Technology, Through 2023

Table 26: Major Manufacturers of NMR Spectroscopes

Table 27: Global UV-Visible Spectroscopy Market, by Region, Through 2023

Table 28: Leading Manufacturers in the UV-Spectroscopy Market

Table 29: Advances in Technology/Product Development in UV-Spectroscopy

Table 30: Global Infrared Spectroscopy Market, by Region, Through 2023

Table 31: Major Companies in the Infrared Spectroscopy Market

Table 32: Technological Advances/Product Launches in Infrared Spectroscopy



- Table 33: Near-Infrared Bands of Organic Compounds
- Table 34: Global Near-Infrared Spectroscopy Market, by Region, Through 2023
- Table 35: Some Major Companies in the Near-Infrared Spectroscopy Market
- Table 36: Detector Technologies Used in NIR Spectroscopy
- Table 37: Major Product Launches in the Near-Infrared Spectroscopy Market
- Table 38: Major Manufacturers of Raman Spectroscopes
- Table 39: Advantages of Raman Spectrometry
- Table 40: Fields that Use Raman Spectroscopy and Their Applications
- Table 41: Global Raman Spectroscopy Market, by Region, Through 2023
- Table 42: Global Market for Other Technologies, by Region, Through 2023
- Table 43: Major Companies in the Fluorescence Spectroscopy Market
- Table 44: Recent Major Product Launches in the Fluorescent Spectroscopy Market
- Table 45: Major Companies in the Color Measurement Spectroscopy Market
- Table 46: Global Spectroscopy Market, by Application, Through 2023
- Table 47: Global Market for Drug Development and Testing, by Region, Through 2023
- Table 48: Persons 60 Years or Over, by Region, 2017 and 2050
- Table 49: Global Market for Spectroscopy Used in Environmental Applications, by
- Region, Through 2023
- Table 50: Product Launches in Spectroscopy for Environmental Applications
- Table 51: Global Clinical and Diagnostics Market, by Region, Through 2023
- Table 52: Clinical Applications of Different Types of Spectroscopy
- Table 53: Diagnostics Applications of Different Types of Spectroscopy
- Table 54: Major Clinical Trials
- Table 55: Application Areas of Optical Spectroscopy in Food Analysis
- Table 56: Characteristics of Handheld Optical Spectrometers
- Table 57: NIR-Based Alcohol Analyzers
- Table 58: Global Market for Spectroscopy in Food and Beverage Testing, by Region,
- Through 2023
- Table 59: Food Fraud and Adulteration Cases Globally, 2015-2017
- Table 60: Advances in Mass Spectrometry for Food and Beverage Testing
- Table 61: Proteomic Approaches to Identify Authenticity of Key Food Products
- Table 62: Key Trends in the Global Food and Beverage Industry, 2015 and 2022
- Table 63: Global Market for Spectroscopy in Other Applications, by Region, Through 2023
- Table 64: Manufacturers of Spectrometers Used in Agricultural Applications
- Table 65: Global Market for Spectroscopy, by End User, Through 2023
- Table 66: Global Market for Spectroscopy in Research Institutes, by Region, Through 2023
- Table 67: NMR Applications in Biomedical Research



- Table 68: NMR Applications in Biomedical Research
- Table 69: Various Cancer Research Programs
- Table 70: Cancer-Related Fatalities, by Type, 2015
- Table 71: Female Breast Cancer Deaths in the U.S., by Age, 2017
- Table 72: Methods for Trace Element Analysis
- Table 73: Healthcare Spending, by Countries with Different Income Levels, 2040
- Table 74: German Federal Government R&D Funding, by Research Area, 2016 and 2017
- Table 75: Estimated U.S. Medical and Health Research Expenditures and Percentage of Total U.S. Spending, Academic and Research Institutions
- Table 76: Estimated U.S. Medical and Health Research Expenditures and Percentage of Total U.S. Spending, Federal Government Agencies
- Table 77: Global Market for Spectroscopy in Pharmaceutical and Biotechnology, by Region, Through 2023
- Table 78: History of the Development of Analytical Instrumentation, 1919-1961
- Table 79: Spectroscopy Deployment in Drug Manufacturing
- Table 80: Global Market for Spectroscopy in Other End User Companies, by Region, Through 2023
- Table 81: Global Spectroscopy Market, by Region, Through 2023
- Table 82: North America Spectroscopy Market, by Country, Through 2023
- Table 83: Percentage of New Cancer Cases in U.S. Males, 2017
- Table 84: Share of New Cancer Cases in U.S. Females, 2017
- Table 85: Current Grants, by Cancer Type, 2017
- Table 86: Number of Individuals Impacted by Chronic Diseases
- Table 87: Funding by Federal Government Agencies for Screening and Treatment of Chronic Diseases
- Table 88: North American Spectroscopy Market, by Technology, Through 2023
- Table 89: Distribution of Estimated New Cancer Cases, by Sex (Males), 2017
- Table 90: Distribution of Projected New Cancer Cases in Females, 2017
- Table 91: North American Spectroscopy Market, by Application, Through 2023
- Table 92: North American Spectroscopy Market, by End User, Through 2023
- Table 93: European Spectroscopy Market, by Country, Through 2023
- Table 94: European Spectroscopy Market, by Technology, Through 2023
- Table 95: Deaths from CVD and Numbers Living with CVD, 2017
- Table 96: European Spectroscopy Market, by Application, Through 2023
- Table 97: European Spectroscopy Market, by End User, Through 2023
- Table 98: Deaths Caused by Cardiovascular Diseases in Germany, 2005-2016
- Table 99: Diseases Causing the Most Premature Deaths in Germany, 2005-2016
- Table 100: Rising Geriatric Population in Germany, 2000-2030



Table 101: Asia-Pacific Spectroscopy Market, by Country, Through 2023

Table 102: Awards for Creative Research Groups in China in the Science Fund, 2016

Table 103: Asia-Pacific Spectroscopy Market, by Technology, Through 2023

Table 104: Medical Funding Priorities for Research in Japan, 2015

Table 105: Asia-Pacific Spectroscopy Market, by Application, Through 2023

Table 106: Environmental Quality Standards in Japan

Table 107: Asia-Pacific Spectroscopy Market, by End User, Through 2023

Table 108: Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales

Table 109: ROW Spectroscopy Market, by Region, Through 2023

Table 110: New Cases of Cancer in Brazil, by Gender, 2016

Table 111: ROW Spectroscopy Market, by Technology, Through 2023

Table 112: ROW Spectroscopy Market, by Application, Through 2023

Table 113: ROW Spectroscopy Market, by End User, Through 2023

Table 114: DWAF Laboratory Methods with Corresponding GEMS/Water Method

Number in South Africa

Table 115: U.S. Patents, 2017-July 2018

Table 116: European Patents, 2015-July 2018

Table 117: Japanese Patents, 2015-2018

Table 118: Spectroscopy Instruments and Their Raw Materials and Parts

Table 119: Leading Suppliers of Components and Raw Materials of Spectroscopy

Instruments

Table 120: Distributors of Spectroscopy Analytical Instruments, by Region/Country

Table 121: Global Manufacturing Competitiveness Index, 2016 and 2020

Table 122: Comparison of Major Players and Their Products

Table 123: AB SCIEX: Product Portfolio

Table 124: AB SCIEX: Recent Developments, 2017-2018

Table 125: Advion: Product Portfolio

Table 126: Advion: Recent Developments, 2017-July 2018

Table 127: Agilent Technologies: Product Portfolio

Table 128: Agilent Technologies: Recent Developments, 2018

Table 129: Ametek: Product Portfolio

Table 130: Ametek: Recent Development, 2018

Table 131: Aurora Biomed: Product Portfolio

Table 132: Avantes: Product Portfolio

Table 133: Avantes: Recent Developments, 2017-July 2018

Table 134: B&W Tek: Product Portfolio

Table 135: BME: Product Portfolio

Table 136: Bio-Rad: Product Portfolio



Table 137: Bruker: Product Portfolio

Table 138: Bruker: Recent Developments, 2018

Table 139: Danaher: Product Portfolio

Table 140: DANI: Product Portfolio

Table 141: DANI: Recent Developments, 2015-July 2018

Table 142: Evans Analytical Group: Product Portfolio

Table 143: Extrel: Product Portfolio

Table 144: Extrel: Recent Developments, 2018

Table 145: HiperScan GmbH: Product Portfolio

Table 146: Horiba: Product Portfolio

Table 147: Horiba: Recent Developments, 2018

Table 148: Hitachi High Technologies: Product Portfolio

Table 149: Hitachi High Technologies: Recent developments, 2016-July 2018

Table 150: IonSense: Product Portfolio

Table 151: Jasco: Product Portfolio

Table 152: JEOL: Product Portfolio

Table 153: JEOL: Recent Developments, 2017-July 2018

Table 154: Kore Technology: Product Portfolio

Table 155: MKS Instruments: Product Portfolio

Table 156: Ocean Optics: Product Portfolio

Table 157: Pendar Technologies: Product Portfolio

Table 158: PerkinElmer: Product Portfolio

Table 159: PerkinElmer: Recent Developments, 2015-July 2018

Table 160: Pfeiffer Vacuum GmbH: Product Portfolio

Table 161: Pfeiffer Vacuum GmbH: Recent Developments, 2015-July 2018

Table 162: Shimadzu: Product Portfolio

Table 163: Shimadzu: Recent Developments, 2015-July 2018

Table 164: Thermo Fisher: Product Portfolio

Table 165: Waters: Product Portfolio

Table 166: Waters: Recent Developments, 2015-July 2018

Table 167: Zurich Instruments: Product Portfolio

Table 168: Zurich Instruments: Recent Developments, 2015-July 2018

IST OF FIGURES

Summary Figure: Global Market for Spectroscopy, by Technology/Application/End User/Region, 2017-2023

Figure 1: Information that Can Be Obtained from X-Ray Spectroscopy

Figure 2: Workflow for Non-Target Screening of Environmental Samples



- Figure 3: Steps Involved in Toxic Compound Isolation, Identification and Quantitation
- Figure 4: GC-MS and LC-MS Amalgamation of Steps in the Analytical Process for Toxic
- Compound Detection and Quantitation
- Figure 5: Global Atomic Spectroscopy Market Share, by Company/Country, 2017
- Figure 6: Global Mass Spectroscopy Market Share, by Company/Country, 2017
- Figure 7: Global Molecular Spectroscopy Market Share, by Company/Country, 2017
- Figure 8: Competitive Landscape Share, by Type
- Figure 9: Basic Principle of Atomic Absorption Spectroscopy
- Figure 10: Techniques of Atomic Spectroscopy
- Figure 11: Applications of Atomic Spectroscopy
- Figure 12: Components of a Mass Spectrometer
- Figure 13: Global Total Pharmaceutical R&D Spending, 2015-2022
- Figure 14: Block Diagram of NMR Spectroscopy
- Figure 15: FDA Drug Approvals, 2016 and 2017
- Figure 16: Global Pharmaceutical R&D Expenditure, 2015-2020
- Figure 17: Mechanism of UV-Visible Spectroscopy
- Figure 18: Electronic Transitions that Light Can Cause
- Figure 19: Visible Region Color Wheel
- Figure 20: Division of Infrared Region
- Figure 21: Mechanism of Infrared (IR) Spectroscopy Technique
- Figure 22: Mechanism of Fluorescence Spectroscopy
- Figure 23: Mechanism of Color Measurement, by Spectrometer
- Figure 24: Drug Development Process and Application of Spectroscopy
- Figure 25: Overview on Application of NMR Spectroscopy in Drug Discovery and

Development

- Figure 26: Persons Aged 60 Years or Over, by Region, 2017 and 2050
- Figure 27: Medicines in Global Development, by Regulatory Phase, 2015
- Figure 28: Medicines in Development for Non-Communicable Diseases (NCDs)
- Figure 29: Pharmaceutical R&D Spending, 2010-2015
- Figure 30: Application Range for GC-MS and LC-MS
- Figure 31: Quality of Groundwater in China, 2015
- Figure 32: Major Clinical and Diagnostics Applications of Spectroscopy
- Figure 33: Number of Deaths Worldwide Caused by Selected Chronic Diseases, 2015
- Figure 34: Global Prevalence of Dementia, 2015-2050
- Figure 35: People Living with Dementia, by Region, 2015-2050
- Figure 36: Worldwide Cancer Prevalence and Cancer Mortality Rates, 2012 and 2030
- Figure 37: Cancer Deaths Worldwide, by Type, 2016
- Figure 38: Flowchart for Near-Infrared (NIR) Spectroscopy Analysis of Food-Both Food
- Products and Raw Materials



- Figure 39: Global Market Share for Spectroscopy, by End User, 2017 and 2023
- Figure 40: Cancer-Related Fatalities, by Type, 2015
- Figure 41: Schematic Diagram of an Atomic Absorption Spectrometer
- Figure 42: All New Cancer Cases in the U.S., by Type, 2018
- Figure 43: Share of New Cases of Oral Cavity and Pharynx Cancer, by Age Group, 2018
- Figure 44: German Government Expenditures Share on Life-Science R&D, by
- Recipient, 2016
- Figure 45: Sampling Process for Raman and SERS Analysis
- Figure 46: Pharmaceutical R&D Spending in the U.S., 2005-2015
- Figure 47: R&D Spending by Seven Pharma Giants in India, 2016
- Figure 48: Pharmaceutical Research and Manufacturers of America (PHRMA) R&D Investment in the U.S., 2005-2016
- Figure 49: Global Share of R&D Spending in Drug Testing, by Region, 2016
- Figure 50: Global Share Distribution of Population Aged 65 and Over, by Region, 2016 and 2050
- Figure 51: Number of Deaths from Alcohol and Drug Use Globally, 2010-2016
- Figure 52: France's Food Processing Industry
- Figure 53: Rising Geriatric Population in Germany, 2000-2030
- Figure 54: Organizations in the Food and Beverage Subsector in Spain, 2015
- Figure 55: India's Pharmaceutical Market, 2011-2017
- Figure 56: Application of Spectroscopy in Environmental Quality Analysis
- Figure 57: Population Share Over 50 with Poor Bone Health in Australia, 2016
- Figure 58: R&D in Pharmaceutical Sector in South Korea, 2016 and 2017
- Figure 59: Fortified/Functional Food and Beverage Sales in Brazil, 2009-2015
- Figure 60: Deaths Caused by Cancer in the UAE, by Type of Cancer, 2015
- Figure 61: Spectroscopy Industry Structure
- Figure 62: Life Science Analytical Instrument R&D Process
- Figure 63: Components for Ascertaining Data Quality
- Figure 64: Spectroscopy Manufacturing Process
- Figure 65: Global Pharmaceutical R&D Spending, 2005-2024
- Figure 66: Global Logistics Robotics Market, 2015-2021
- Figure 67: Opportunities for Third-Party Logistics from Digital Disruptions



I would like to order

Product name: Traditional and Emerging Spectroscopy Techniques in Life Sciences

Product link: https://marketpublishers.com/r/T4E561325AEEN.html

Price: US\$ 2,750.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer

Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/T4E561325AEEN.html

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:	
Last name:	
Email:	
Company:	
Address:	
City:	
Zip code:	
Country:	
Tel:	
Fax:	
Your message:	
	**All fields are required
	Custumer signature

To place an order via fax simply print this form, fill in the information below and fax the completed form to +44 20 7900 3970

& Conditions at https://marketpublishers.com/docs/terms.html

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms