

Bio Decontamination Market By Product (Equipment, Consumables) , By Agent (Hydrogen Peroxide, Chlorine Dioxide, Nitrogen Dioxide) By Type (Chamber Decontamination, Room Decontamination) By End User (Pharmaceutical and Biotechnology Companies, Healthcare Facilities) : Global Opportunity Analysis and Industry Forecast, 2024-2033

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Report description:

The bio-decontamination market was valued at \$229.5 million in 2023, and is projected to reach \$525.4 million by 2033, growing at a CAGR of 8.7% from 2024 to 2033.

Bio-decontamination is a process that involves the elimination of microbiological contamination to an acceptable level from a specific environment or surface. To efficiently inhibit the growth of microorganisms, chemical disinfectants, physical methods, or other sterilization technologies are used, ensuring that the treated environment is free from potential biological threats. For instance, vaporized hydrogen peroxide is a widely used ecological bio-decontamination agent that decomposes into water and oxygen, leaving no residue. Thus, this process plays a critical role in industries such as healthcare, pharmaceuticals, and food production, where maintaining a sterile environment is essential to ensure safety.

Alarming increase in prevalence of healthcare-associated infections (HAIs) in hospitals and healthcare facilities acts as the key driving forces of the global bio-decontamination market, as ensuring patient safety and reducing infection rates in these settings is of utmost importance. As per a news release by the World Health Organization in 2022, 1 in every 10 affected patients will die from HAIs. Based on the assessment of the European Centre for Disease Prevention and Control, more than 3.5 million cases of HAIs are estimated to be reported in the European Union and European Economic Area, annually. A study by the Office of Disease Prevention and Health Promotion further states that more than 680,000 HAIs are reported each year in the U.S. The growth of the global bio-decontamination market is further driven by expansion of pharmaceutical and biotechnology sectors, with a focus on maintaining sterile environments for research and production as well as increase in awareness about the importance of

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infection control and prevention in both clinical and non-clinical settings. Moreover, the outbreak of the COVID-19 pandemic has heightened the focus on bio-decontamination as part of emergency preparedness, leading to increased investments and the adoption of robust decontamination protocols across various industries, which significantly contribute toward the growth of the market. Rise in environmental concerns is further fostering the adoption of sustainable bio-decontamination methods. For instance, solutions such as ozone, hydrogen peroxide, and UV-C light are gaining high traction due to their minimal environmental impact and reduced chemical residues. However, high cost associated with bio-decontamination equipment and services, lack of awareness about the importance of bio-decontamination, and limited expertise in implementing effective decontamination protocols hamper the market growth. On the contrary, innovations in bio-decontamination technologies, such as automated systems, safer and more effective disinfectants, and advanced monitoring tools, are expected to offer lucrative opportunities for the expansion of the global market during the forecast period. Expansion of healthcare facilities in emerging markets is creating additional demand for bio-decontamination solutions to maintain hygiene standards, which is anticipated to open new avenues for the growth of the global market.

The bio-decontamination market is segmented into product, agent, type, end user, and region. By product, the market is divided into equipment and consumables. On the basis of agent, it is segregated into hydrogen peroxide, chlorine dioxide, and nitrogen dioxide. Depending on type, it is fragmented into chamber decontamination and room decontamination. As per end user, it is segregated into pharmaceutical & biotechnology companies and healthcare facilities. Region wise, the market is analyzed across North America, Europe, Asia-Pacific, and LAMEA.

Key Findings

By product, the equipment segment dominated the market, in terms of share, in 2023.

On the basis of agent, the hydrogen peroxide segment was the major shareholder in 2023.

Depending on type, chamber decontamination emerged as the leading segment in 2023.

As per end user, the pharmaceutical & biotechnology companies segment garnered the maximum share in 2023.

Region wise, North America held a dominant position in the market in 2023.

Competition Analysis

Competitive analysis and profiles of the major players in the global bio-decontamination market include Fedegari Autoclavi SpA, STERIS plc, TOMI Environmental Solutions Inc., Ecolab Inc., JCE Biotechnology, DIOP GmbH & Co KG, Howorth Air Technology Ltd., Zhejiang TAILIN Bioengineering Co., LTD., AM Instruments SRL, and Solidfog Technologies. These major players have adopted various key development strategies such as business expansion, new product launches, and partnerships to sustain the intense competition and gain a strong foothold in the global market.

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- Regulatory Guidelines
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- Additional country or region analysis- market size and forecast
- Expanded list for Company Profiles
- Historic market data
- Key player details (including location, contact details, supplier/vendor network etc. in excel format)

Key Market Segments

By Product

- Equipment
- Consumables

By Agent

- Hydrogen Peroxide
- Chlorine Dioxide
- Nitrogen Dioxide

By Type

- Chamber Decontamination
- Room Decontamination

By End User

- Pharmaceutical and Biotechnology Companies
- Healthcare Facilities

By Region

- North America
- U.S.
- Canada
- Mexico
- Europe
- Germany
- France
- UK
- Spain
- Rest of Europe
- Asia-Pacific
- Japan
- China
- Australia
- India
- South Korea
- Rest of Asia-Pacific
- LAMEA
- Brazil
- Saudi Arabia
- South Africa
- Rest of LAMEA
- Key Market Players
- Fedegari Autoclavi SpA
- STERIS plc
- TOMI Environmental Solutions Inc

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- Ecolab Inc
- JCE Biotechnology
- DIOP GmbH & Co KG
- Howorth Air Technology Ltd
- Zhejiang TAILIN Bioengineering Co., LTD
- AM Instruments SRL
- Solidfog Technologies

Table of Contents:

CHAPTER 1: INTRODUCTION

- 1.1. Report Description
- 1.2. Key Market Segments
- 1.3. Key Benefits
- 1.4. Research Methodology
 - 1.4.1. Primary Research
 - 1.4.2. Secondary Research
 - 1.4.3. Analyst Tools and Models

CHAPTER 2: EXECUTIVE SUMMARY

- 2.1. CXO Perspective

CHAPTER 3: MARKET LANDSCAPE

- 3.1. Market Definition and Scope
- 3.2. Key Findings
 - 3.2.1. Top Investment Pockets
 - 3.2.2. Top Winning Strategies
- 3.3. Porter's Five Forces Analysis
 - 3.3.1. Bargaining Power of Suppliers
 - 3.3.2. Threat of New Entrants
 - 3.3.3. Threat of Substitutes
 - 3.3.4. Competitive Rivalry
 - 3.3.5. Bargaining Power among Buyers
- 3.4. Market Dynamics
 - 3.4.1. Drivers
 - 3.4.2. Restraints
 - 3.4.3. Opportunities

CHAPTER 4: BIOBANK MANAGEMENT SYSTEMS MARKET, BY SAMPLE TYPE

- 4.1. Market Overview
 - 4.1.1 Market Size and Forecast, By Sample Type
- 4.2. Absorbable Human Tissue Organ Samples
 - 4.2.1. Key Market Trends, Growth Factors and Opportunities
 - 4.2.2. Market Size and Forecast, By Region
 - 4.2.3. Market Share Analysis, By Country
- 4.3. Plant Animal Samples
 - 4.3.1. Key Market Trends, Growth Factors and Opportunities
 - 4.3.2. Market Size and Forecast, By Region
 - 4.3.3. Market Share Analysis, By Country
- 4.4. Microbial Samples
 - 4.4.1. Key Market Trends, Growth Factors and Opportunities

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- 4.4.2. Market Size and Forecast, By Region
- 4.4.3. Market Share Analysis, By Country
- CHAPTER 5: BIOBANK MANAGEMENT SYSTEMS MARKET, BY APPLICATION
- 5.1. Market Overview
- 5.1.1 Market Size and Forecast, By Application
- 5.2. Regenerative Medicine
- 5.2.1. Key Market Trends, Growth Factors and Opportunities
- 5.2.2. Market Size and Forecast, By Region
- 5.2.3. Market Share Analysis, By Country
- 5.3. Life Science Research
- 5.3.1. Key Market Trends, Growth Factors and Opportunities
- 5.3.2. Market Size and Forecast, By Region
- 5.3.3. Market Share Analysis, By Country
- 5.4. Clinical Research
- 5.4.1. Key Market Trends, Growth Factors and Opportunities
- 5.4.2. Market Size and Forecast, By Region
- 5.4.3. Market Share Analysis, By Country
- 5.5. Environmental Research
- 5.5.1. Key Market Trends, Growth Factors and Opportunities
- 5.5.2. Market Size and Forecast, By Region
- 5.5.3. Market Share Analysis, By Country
- CHAPTER 6: BIOBANK MANAGEMENT SYSTEMS MARKET, BY REGION
- 6.1. Market Overview
- 6.1.1 Market Size and Forecast, By Region
- 6.2. North America
- 6.2.1. Key Market Trends and Opportunities
- 6.2.2. Market Size and Forecast, By Sample Type
- 6.2.3. Market Size and Forecast, By Application
- 6.2.4. Market Size and Forecast, By Country
- 6.2.5. U.S. Biobank Management Systems Market
- 6.2.5.1. Market Size and Forecast, By Sample Type
- 6.2.5.2. Market Size and Forecast, By Application
- 6.2.6. Canada Biobank Management Systems Market
- 6.2.6.1. Market Size and Forecast, By Sample Type
- 6.2.6.2. Market Size and Forecast, By Application
- 6.2.7. Mexico Biobank Management Systems Market
- 6.2.7.1. Market Size and Forecast, By Sample Type
- 6.2.7.2. Market Size and Forecast, By Application
- 6.3. Europe
- 6.3.1. Key Market Trends and Opportunities
- 6.3.2. Market Size and Forecast, By Sample Type
- 6.3.3. Market Size and Forecast, By Application
- 6.3.4. Market Size and Forecast, By Country
- 6.3.5. Germany Biobank Management Systems Market
- 6.3.5.1. Market Size and Forecast, By Sample Type
- 6.3.5.2. Market Size and Forecast, By Application
- 6.3.6. France Biobank Management Systems Market

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- 6.3.6.1. Market Size and Forecast, By Sample Type
- 6.3.6.2. Market Size and Forecast, By Application
- 6.3.7. UK Biobank Management Systems Market
 - 6.3.7.1. Market Size and Forecast, By Sample Type
 - 6.3.7.2. Market Size and Forecast, By Application
- 6.3.8. Italy Biobank Management Systems Market
 - 6.3.8.1. Market Size and Forecast, By Sample Type
 - 6.3.8.2. Market Size and Forecast, By Application
- 6.3.9. Spain Biobank Management Systems Market
 - 6.3.9.1. Market Size and Forecast, By Sample Type
 - 6.3.9.2. Market Size and Forecast, By Application
- 6.3.10. Rest of Europe Biobank Management Systems Market
 - 6.3.10.1. Market Size and Forecast, By Sample Type
 - 6.3.10.2. Market Size and Forecast, By Application
- 6.4. Asia-Pacific
 - 6.4.1. Key Market Trends and Opportunities
 - 6.4.2. Market Size and Forecast, By Sample Type
 - 6.4.3. Market Size and Forecast, By Application
 - 6.4.4. Market Size and Forecast, By Country
 - 6.4.5. Japan Biobank Management Systems Market
 - 6.4.5.1. Market Size and Forecast, By Sample Type
 - 6.4.5.2. Market Size and Forecast, By Application
 - 6.4.6. China Biobank Management Systems Market
 - 6.4.6.1. Market Size and Forecast, By Sample Type
 - 6.4.6.2. Market Size and Forecast, By Application
 - 6.4.7. Australia Biobank Management Systems Market
 - 6.4.7.1. Market Size and Forecast, By Sample Type
 - 6.4.7.2. Market Size and Forecast, By Application
 - 6.4.8. India Biobank Management Systems Market
 - 6.4.8.1. Market Size and Forecast, By Sample Type
 - 6.4.8.2. Market Size and Forecast, By Application
 - 6.4.9. South Korea Biobank Management Systems Market
 - 6.4.9.1. Market Size and Forecast, By Sample Type
 - 6.4.9.2. Market Size and Forecast, By Application
 - 6.4.10. Rest of Asia-Pacific Biobank Management Systems Market
 - 6.4.10.1. Market Size and Forecast, By Sample Type
 - 6.4.10.2. Market Size and Forecast, By Application
- 6.5. LAMEA
 - 6.5.1. Key Market Trends and Opportunities
 - 6.5.2. Market Size and Forecast, By Sample Type
 - 6.5.3. Market Size and Forecast, By Application
 - 6.5.4. Market Size and Forecast, By Country
 - 6.5.5. Brazil Biobank Management Systems Market
 - 6.5.5.1. Market Size and Forecast, By Sample Type
 - 6.5.5.2. Market Size and Forecast, By Application
 - 6.5.6. Saudi Arabia Biobank Management Systems Market
 - 6.5.6.1. Market Size and Forecast, By Sample Type

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- 6.5.6.2. Market Size and Forecast, By Application
- 6.5.7. South Africa Biobank Management Systems Market
 - 6.5.7.1. Market Size and Forecast, By Sample Type
 - 6.5.7.2. Market Size and Forecast, By Application
- 6.5.8. Rest of LAMEA Biobank Management Systems Market
 - 6.5.8.1. Market Size and Forecast, By Sample Type
 - 6.5.8.2. Market Size and Forecast, By Application

CHAPTER 7: COMPETITIVE LANDSCAPE

- 7.1. Introduction
- 7.2. Top Winning Strategies
- 7.3. Product Mapping of Top 10 Player
- 7.4. Competitive Dashboard
- 7.5. Competitive Heatmap
- 7.6. Top Player Positioning, 2023

CHAPTER 8: COMPANY PROFILES

- 8.1. Agilent Technologies, Inc.
 - 8.1.1. Company Overview
 - 8.1.2. Key Executives
 - 8.1.3. Company Snapshot
 - 8.1.4. Operating Business Segments
 - 8.1.5. Product Portfolio
 - 8.1.6. Business Performance
 - 8.1.7. Key Strategic Moves and Developments
- 8.2. CloudLIMS Technologies Pvt. Ltd.
 - 8.2.1. Company Overview
 - 8.2.2. Key Executives
 - 8.2.3. Company Snapshot
 - 8.2.4. Operating Business Segments
 - 8.2.5. Product Portfolio
 - 8.2.6. Business Performance
 - 8.2.7. Key Strategic Moves and Developments
- 8.3. AgileBio SARL
 - 8.3.1. Company Overview
 - 8.3.2. Key Executives
 - 8.3.3. Company Snapshot
 - 8.3.4. Operating Business Segments
 - 8.3.5. Product Portfolio
 - 8.3.6. Business Performance
 - 8.3.7. Key Strategic Moves and Developments
- 8.4. Modul-Bio
 - 8.4.1. Company Overview
 - 8.4.2. Key Executives
 - 8.4.3. Company Snapshot
 - 8.4.4. Operating Business Segments
 - 8.4.5. Product Portfolio
 - 8.4.6. Business Performance
 - 8.4.7. Key Strategic Moves and Developments

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- 8.5. Autoscribe Informatics
 - 8.5.1. Company Overview
 - 8.5.2. Key Executives
 - 8.5.3. Company Snapshot
 - 8.5.4. Operating Business Segments
 - 8.5.5. Product Portfolio
 - 8.5.6. Business Performance
 - 8.5.7. Key Strategic Moves and Developments
- 8.6. Krishagni Solutions Pvt Ltd
 - 8.6.1. Company Overview
 - 8.6.2. Key Executives
 - 8.6.3. Company Snapshot
 - 8.6.4. Operating Business Segments
 - 8.6.5. Product Portfolio
 - 8.6.6. Business Performance
 - 8.6.7. Key Strategic Moves and Developments
- 8.7. Information Management Services, Inc
 - 8.7.1. Company Overview
 - 8.7.2. Key Executives
 - 8.7.3. Company Snapshot
 - 8.7.4. Operating Business Segments
 - 8.7.5. Product Portfolio
 - 8.7.6. Business Performance
 - 8.7.7. Key Strategic Moves and Developments
- 8.8. Technidata Inc
 - 8.8.1. Company Overview
 - 8.8.2. Key Executives
 - 8.8.3. Company Snapshot
 - 8.8.4. Operating Business Segments
 - 8.8.5. Product Portfolio
 - 8.8.6. Business Performance
 - 8.8.7. Key Strategic Moves and Developments
- 8.9. Qiagen N.V
 - 8.9.1. Company Overview
 - 8.9.2. Key Executives
 - 8.9.3. Company Snapshot
 - 8.9.4. Operating Business Segments
 - 8.9.5. Product Portfolio
 - 8.9.6. Business Performance
 - 8.9.7. Key Strategic Moves and Developments
- 8.10. Azenta Inc
 - 8.10.1. Company Overview
 - 8.10.2. Key Executives
 - 8.10.3. Company Snapshot
 - 8.10.4. Operating Business Segments
 - 8.10.5. Product Portfolio
 - 8.10.6. Business Performance

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8.10.7. Key Strategic Moves and Developments

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