

# **North America Biotic Concrete Market By Form (Intrinsic, Capsule-based, Vascular), By Application (Residential Construction, Commercial Construction, Industrial Construction), By Country, By Competition, Forecast and Opportunities, 2020-2030F**

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## **Abstracts**

The North America Biotic Concrete Market was valued at USD 24.11 Billion in 2024 and is projected to reach USD 47.38 Billion by 2030, growing at a CAGR of 11.92% during the forecast period. Biotic concrete, also referred to as bio-receptive concrete, is a sustainable building material specifically engineered to support the growth of living organisms like moss, algae, and lichens on its surface. Unlike traditional concrete, this material features enhanced porosity, surface texture, and bio-nutrient integration, enabling it to foster micro-ecosystems while delivering structural strength. In North America, the market is expanding as urban developers, architects, and infrastructure planners prioritize environmentally responsive construction to meet goals related to climate adaptation, biodiversity enhancement, and urban sustainability. The material's self-healing capacity, driven by microbial-induced calcite formation, and its ability to combat heat island effects are further bolstering its demand. Regional growth is also influenced by supportive environmental regulations, net-zero emission initiatives, and public-private investments in green urban infrastructure. Applications span from facades and bridges to sound barriers and vertical gardens, as leading cities and research institutions continue to adopt and refine this technology. With increased adoption in cities like New York, Vancouver, and Los Angeles, and growing stakeholder interest in integrating ecological benefits with long-term infrastructure resilience, the North America biotic concrete market is positioned for sustained expansion in the coming years.

## **Key Market Drivers**

## Rising Emphasis on Sustainable Urban Infrastructure Development

The North America biotic concrete market is being driven by a growing demand for sustainable urban infrastructure across residential, commercial, and public sector developments. As urbanization intensifies and environmental concerns mount—such as heat islands, stormwater runoff, and carbon emissions—municipalities and developers are actively seeking green construction materials that align with climate resilience and ecological restoration goals. Biotic concrete, through its bio-receptive properties, enables vegetation growth and contributes to air purification, temperature moderation, and biodiversity enhancement. Cities like Toronto, San Francisco, and New York are incorporating this material into their urban planning frameworks, aided by green construction mandates and incentives tied to environmental performance. The push for carbon-neutral infrastructure and support for nature-integrated designs has accelerated the material's deployment in facades, retaining structures, and walkways. The growing public interest in sustainable urban living, supported by green standards and development permits, continues to propel the market forward. Notably, Toronto's Green Infrastructure Initiative and new urban design standards have led to the inclusion of biotic-compatible materials in more than 140 city-approved projects in 2023 alone—signifying a 38% year-over-year increase.

## Key Market Challenges

### High Initial Cost of Implementation

A key challenge impacting the North America biotic concrete market is its comparatively high initial cost. Although the material offers long-term sustainability and operational benefits, such as energy savings and enhanced durability, the up-front investment is significantly higher than for conventional concrete. This is due to specialized production processes, bio-nutrient additives, and additional engineering required to support biological colonization. Installation may also require skilled labor and supplementary infrastructure, making biotic concrete less accessible to small-scale developers and cost-sensitive projects. While some cost relief is available through green building incentives and certifications, financial constraints remain a barrier for widespread adoption—particularly for firms not eligible for environmental grants. Until technological advancements reduce manufacturing expenses and economies of scale are achieved, the higher price point will continue to limit broader market penetration, particularly among smaller construction firms.

## Key Market Trends

### Growing Adoption of Biophilic Design in Urban Developments

The integration of biophilic design in modern architecture is emerging as a major trend in the North America biotic concrete market. Biophilic design emphasizes connecting people with nature through elements like living walls, green facades, and vegetated surfaces—all of which are compatible with biotic concrete. The increasing awareness of the physical and psychological benefits of green environments is prompting developers to use materials that support natural aesthetics and ecological functionality. In cities like Vancouver, Los Angeles, and New York, developers are incorporating biotic concrete into both new constructions and retrofits to create environmentally responsive buildings. This trend is further strengthened by the rising popularity of wellness-focused architecture and the push for nature-based solutions to urban challenges. As cities seek to address sustainability and livability concerns, the adoption of biotic concrete as part of biophilic design strategies is expected to expand steadily, offering both functional and ecological value.

## Key Market Players

CarbonCure Technologies Inc.

Carbicrete Inc.

Lafarge Canada Inc.

Fortera Corporation

Alterbiota Inc.

Giatec Scientific Inc.

Ecologic Material Technologies, Inc.

Sublime Systems Inc.

## Report Scope:

In this report, the North America Biotic Concrete Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

#### North America Biotic Concrete Market, By Form:

Intrinsic

Capsule-based

Vascular

#### North America Biotic Concrete Market, By Application:

Residential Construction

Commercial Construction

Industrial Construction

#### North America Biotic Concrete Market, By Country:

United States

Canada

Mexico

#### Competitive Landscape

**Company Profiles:** Detailed analysis of the major companies present in the North America Biotic Concrete Market.

#### Available Customizations

North America Biotic Concrete Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

*North America Biotic Concrete Market By Form (Intrinsic, Capsule-based, Vascular), By Application (Residential...*

## Company Information

Detailed analysis and profiling of additional market players (up to five).

## Contents

### 1. PRODUCT OVERVIEW

- 1.1. Market Definition
- 1.2. Scope of the Market
  - 1.2.1. Markets Covered
  - 1.2.2. Years Considered for Study
- 1.3. Key Market Segmentations

### 2. RESEARCH METHODOLOGY

- 2.1. Objective of the Study
- 2.2. Baseline Methodology
- 2.3. Formulation of the Scope
- 2.4. Assumptions and Limitations
- 2.5. Sources of Research
  - 2.5.1. Secondary Research
  - 2.5.2. Primary Research
- 2.6. Approach for the Market Study
  - 2.6.1. The Bottom-Up Approach
  - 2.6.2. The Top-Down Approach
- 2.7. Methodology Followed for Calculation of Market Size & Market Shares
- 2.8. Forecasting Methodology
  - 2.8.1. Data Triangulation & Validation

### 3. EXECUTIVE SUMMARY

- 3.1. Overview of the Market
- 3.2. Overview of Key Market Segmentations
- 3.3. Overview of Key Market Players
- 3.4. Overview of Key Regions/Countries
- 3.5. Overview of Market Drivers, Challenges, and Trends

### 4. VOICE OF CUSTOMER

### 5. NORTH AMERICA BIOTIC CONCRETE MARKET OUTLOOK

- 5.1. Market Size & Forecast

- 5.1.1. By Value
- 5.2. Market Share & Forecast
  - 5.2.1. By Form (Intrinsic, Capsule-based, Vascular)
  - 5.2.2. By Application (Residential Construction, Commercial Construction, Industrial Construction)
  - 5.2.3. By Country (United States, Canada, Mexico)
  - 5.2.4. By Company (2024)
- 5.3. Market Map

## **6. UNITED STATES BIOTIC CONCRETE MARKET OUTLOOK**

- 6.1. Market Size & Forecast
  - 6.1.1. By Value
- 6.2. Market Share & Forecast
  - 6.2.1. By Form
  - 6.2.2. By Application

## **7. CANADA BIOTIC CONCRETE MARKET OUTLOOK**

- 7.1. Market Size & Forecast
  - 7.1.1. By Value
- 7.2. Market Share & Forecast
  - 7.2.1. By Form
  - 7.2.2. By Application

## **8. MEXICO BIOTIC CONCRETE MARKET OUTLOOK**

- 8.1. Market Size & Forecast
  - 8.1.1. By Value
- 8.2. Market Share & Forecast
  - 8.2.1. By Form
  - 8.2.2. By Application

## **9. MARKET DYNAMICS**

- 9.1. Drivers
- 9.2. Challenges

## **10. MARKET TRENDS & DEVELOPMENTS**

- 10.1. Merger & Acquisition (If Any)
- 10.2. Product Launches (If Any)
- 10.3. Recent Developments

## **11. COMPANY PROFILES**

- 11.1. CarbonCure Technologies Inc.
  - 11.1.1. Business Overview
  - 11.1.2. Key Revenue and Financials
  - 11.1.3. Recent Developments
  - 11.1.4. Key Personnel/Key Contact Person
  - 11.1.5. Key Product/Services Offered
- 11.2. Carbicrete Inc.
- 11.3. Lafarge Canada Inc.
- 11.4. Fortera Corporation
- 11.5. Alterbiota Inc.
- 11.6. Giatec Scientific Inc.
- 11.7. Eco Material Technologies, Inc.
- 11.8. Sublime Systems Inc.

## **12. STRATEGIC RECOMMENDATIONS**

## **13. ABOUT US & DISCLAIMER**



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