

**Long-Range Ordered Porous Carbon (LOPC) Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Application (Energy Storage, Chemical Catalysis, Ion Screening, and Others), By Region and Competition, 2020-2030F**

Market Report | 2025-11-24 | 180 pages | TechSci Research

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**Report description:**

Market Overview

The Global Long-Range Ordered Porous Carbon (LOPC) Market, valued at USD 0.27 Billion in 2024, is projected to experience a CAGR of 4.38% to reach USD 0.35 Billion by 2030. Long-Range Ordered Porous Carbon (LOPC) denotes a class of carbon materials distinguished by their highly ordered, regular pore structures and substantial surface areas. These properties render LOPC valuable across diverse applications including energy storage, catalysis, and environmental remediation. Key market growth drivers include the escalating demand for sustainable energy storage systems, particularly for advanced batteries and supercapacitors.

Key Market Drivers

The Global Long-Range Ordered Porous Carbon (LOPC) Market is significantly propelled by the surging demand for advanced energy storage systems, driven by the electrification of transportation and the expansion of renewable energy integration. LOPC materials offer superior properties such as high surface area and controlled pore structures critical for enhancing the performance of next-generation batteries and supercapacitors. This imperative is evident in the automotive sector, where, according to an IEA report, in 2023, the deployment of batteries for electric vehicles grew by 40 percent with approximately 14 million new electric vehicles manufactured. Concurrently, the rising adoption of lightweight material applications acts as another pivotal market driver. Industries such as automotive and aerospace increasingly seek materials that offer an optimal strength-to-weight ratio to improve fuel efficiency and reduce emissions. Carbon fiber composites, a category benefiting from advancements in porous carbon structures, are integral to these efforts.

Key Market Challenges

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The primary challenging factor for the Global Long-Range Ordered Porous Carbon (LOPC) Market is its high production costs. This elevated cost structure directly impedes the widespread adoption and commercialization of LOPC materials, particularly in sectors highly sensitive to pricing. While LOPC offers superior performance characteristics critical for next-generation applications, its manufacturing expenses often render it less competitive against more established or rapidly cost-optimized materials. For instance, in the energy storage sector, a key application area for LOPC, the cost of competing lithium-ion battery storage devices saw a significant reduction, falling to less than \$200 per kWh in 2023 from approximately \$800 per kWh in 2013, according to the International Energy Agency. This demonstrates the aggressive cost-down pressures present in markets where LOPC seeks to gain traction.

#### Key Market Trends

Long-Range Ordered Porous Carbon is increasingly significant in advanced separation and filtration, utilizing tunable pore sizes and high surface areas for superior selectivity. The global demand for cleaner water and efficient industrial processes propels this trend. According to the International Desalination Association (IDA) in their 2024 yearbook, global installed desalination capacity surpassed 120 million cubic meters per day in 2023, highlighting the critical need for advanced membrane technologies.

LOPC-based membranes offer enhanced fouling resistance and high flux for critical applications.

#### Key Market Players

- Applied Materials, Inc.
- BASF SE
- Mitsubishi Chemical Group Corporation
- Cabot Corporation
- Zeolyst International
- Albemarle Corporation
- Calgon Carbon Corporation
- Entegris, Inc.
- Sumitomo Chemical Co., Ltd.

#### Report Scope:

In this report, the Global Long-Range Ordered Porous Carbon (LOPC) Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

#### -□ Long-Range Ordered Porous Carbon (LOPC) Market, By Application:

- o Energy Storage
- o Chemical Catalysis
- o Ion Screening
- o Others

#### -□ Long-Range Ordered Porous Carbon (LOPC) Market, By Region:

- o Asia Pacific
  - China
  - India
  - Japan
  - Australia
  - South Korea
- o North America
  - United States
  - Canada
  - Mexico
- o Europe
  - France
  - United Kingdom
  - Italy

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- Germany
- Spain
- o South America
- Brazil
- Argentina
- Colombia
- o Middle East & Africa
- South Africa
- Saudi Arabia
- UAE

#### Competitive Landscape

Company Profiles: Detailed analysis of the major companies presents in the Global Long-Range Ordered Porous Carbon (LOPC) Market.

#### Available Customizations:

Global Long-Range Ordered Porous Carbon (LOPC) 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:

#### Company Information

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

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