

Carbon Dioxide Based Chemicals & Polymers Market- Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028 Segmented By Type (Polycarbonate, Polyurethane, Polyethylene Carbonate, and Others), By Application (Packaging, Coating, Adhesive & Sealant, and Others), By Region and By Competition

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Abstracts

Global Carbon Dioxide Based Chemicals & Polymers market is anticipated to rise at an impressive rate through 2028. In organic synthesis, carbon dioxide (CO₂) is an abundant, affordable, nontoxic, and renewable resource. The process of converting CO₂ into high-value fuels or commodities has garnered a lot of interest. It is also highly desired to use CO₂ to create polymeric materials since it can produce materials with diverse properties such as superior thermal properties, aggregation-induced emission (AIE), amphiphilicity, degradation, and others.

Carbon dioxide-based polycarbonates and their copolymers have superior thermal properties, which are highly demanded by end-user industries to use as foams, adhesives, and engineering plastics. Apart from these, carbon dioxide-based amphiphilic polymers were created, manufactured, and utilized in the fields of lithium-ion batteries, treatment, and bioimaging. More than 160,000 tons of carbon dioxide-based polymers are available in the market. Hence, government regulation on increasing the usage of eco-friendly products and the growth of industries where carbon dioxide-based polycarbonates are utilized significantly influence market growth. The rise of such industries will influence the carbon dioxide-based chemicals & polymers market development.

Growing Demand from Plastic Manufacturing Industries Driving the Growth

Around 230 million tons of carbon dioxide is used yearly, predominantly for fertilizer production and oil recovery, where it is directly involved. CO₂ is abundant and can be used directly by partially substituting materials produced from fossil fuels or indirectly by obtaining chemical intermediaries, such as methanol, for the synthesis of polymers. Carbon dioxide is used as a raw ingredient in the manufacturing of polymers extracted from biomass and recycled from industries, and the process is known as carbon capture and utilization (CCU). Such innovative product is helping industries to reduce carbon emissions and use that carbon as a feedstock. As carbon-based polymers have various advanced properties, they are used to make different products like lighting covers, car lights, mobile phone cases, adhesives, packaging, inks, paints, insulator, shock absorbers, and others with enhanced properties. Hence, it will be an eco-friendly substitute for fossil fuel-based polymers with improved properties and influence the carbon dioxide-based chemicals & polymers market's growth in the forecasted period to attain.

Growing Demand for Eco-friendly Products to Achieve Sustainability

The increasing use of plastic products has contributed to the generation of a lot of plastic waste which is contributing to one of the major environmental problems the world is currently experiencing. In 2019, the world generated 460 million Metric tons of plastics. However, plastic consumption still kept on growing owing to the growing demand for plastic-based products. Besides this, carbon dioxide (CO₂) emissions are rising, released by different mediums such as vehicles, manufacturing units, and others. To tackle the issue, there is a rise in demand for carbon capture and utilization (CCU) as a solution to a business that offers feedstock produced by capturing carbon dioxide. The CCU proposed a solution for all the issues by providing degradable polymer, which helps to lower carbon emissions. Government policies support such products as they help in sustainable development and encourage country development along with following global agenda such Paris environment agreement. These product helps to decrease plastic consumption without harming people's lifestyles and promote a petrochemical industry that observes waste carbon dioxide as a sustainable feedstock. Hence, the product's properties that align with sustainable development are propelling the demand for carbon dioxide-based chemicals & polymers in the forecasted period.

Growing Research and Development to Find New Applications

Companies such as Novomer, Inc., SK Innovation Co., Ltd, Cardia Bioplastics, and

Covestro AG, are investing in R&D to patent the method and product. For instance, Chemoautotrophic microbes are now being used in synthetic biological pathways to convert CO₂ into chemicals, fuels, and even proteins because of recent advancements in genetic engineering and process optimization. Apart from these, strict regulation of plastic is going to propel market growth.

Recent Development

Carbon Recycling International (CRI) is working in the field to develop a production method that uses waste carbon dioxide and hydrogen gases that have been captured. In China's Henan Province, CRI has just finished building the first CO₂-to-methanol facility and making it commercially Viable. The cutting-edge facility uses Emissions-to-Liquids (ETL) technology created by CRI and initially shown at a pilot plant in Iceland.

Market Segmentation

Global Carbon Dioxide Based Chemicals & Polymers market is segmented based on type and application. Based on type, the market is divided into polycarbonate, polyurethane, polyethylene carbonate, and others. Based on application, the market is divided into packaging, coating, adhesive & sealant, and others.

Market Players

Bayer Material Science, China National Offshore Oil Company, Empower Materials Inc, Eonic Technologies Ltd, Nanyang Zhongju Tianguan Low Carbon Technology Co., Ltd., Novomer, Inc., SK Innovation Co., Ltd, Cardia bioplastics, Covestro AG, Asahi Kasei Advance Corporation are the major market player in global Carbon Dioxide Based Chemicals & Polymers market.

Report Scope:

In this report, global carbon dioxide-based chemicals & polymers market has been segmented into the following categories, in addition to the industry trends, which have also been detailed below:

Carbon Dioxide Based Chemicals & Polymers Market, By Type:

Polycarbonate

Polyurethane

Polyethylene Carbonate

Others

Carbon Dioxide Based Chemicals & Polymers Market, By Application:

Packaging

Coating

Adhesive & Sealant

Others

Carbon Dioxide Based Chemicals & Polymers Market, By region:

North America

United States

Canada

Mexico

Asia-Pacific

China

India

South Korea

Australia

Japan

Europe

Germany

France

United Kingdom

Spain

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Egypt

Turkey

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in global Carbon Dioxide Based Chemicals & Polymers Market.

Available Customizations:

With the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the

Carbon Dioxide Based Chemicals & Polymers Market- Global Industry Size, Share, Trends, Opportunity, and Foreca...

report:

Company Information

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

Contents

1. TYPE OVERVIEW

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

2. RESEARCH METHODOLOGY

- 2.1. Objective of the Study
- 2.2. Baseline Methodology
- 2.3. Key Industry Partners
- 2.4. Major Association and Secondary Sources
- 2.5. Forecasting Methodology
- 2.6. Data Triangulation & Validation
- 2.7. Assumptions and Limitations

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, Trends

4. GLOBAL CARBON DIOXIDE BASED CHEMICALS & POLYMER MARKET OUTLOOK

- 4.1. Market Size & Forecast
 - 4.1.1. By Value
- 4.2. Market Share & Forecast
 - 4.2.1. By Type (Polycarbonate, Polyurethane, Polyethylene carbonate, Others)
 - 4.2.2. By Application (Packaging, Coating, Adhesive & Sealant, and Others)
 - 4.2.3. By Region (North America, Europe, Asia Pacific, South America, Middle East & Africa)
 - 4.2.4. By Company (2022)

4.3. Market Map

4.3.1. By Type

4.3.2. By Application

4.3.3. By Region

5. NORTH AMERICA CARBON DIOXIDE BASED CHEMICALS & POLYMER MARKET OUTLOOK

5.1. Market Size & Forecast

5.1.1. By Value

5.2. Market Share & Forecast

5.2.1. By Type

5.2.2. By Application

5.2.3. By Country

5.3. Pricing Analysis

5.4. North America: Country Analysis

5.4.1. United States Carbon Dioxide Based Chemicals & Polymer Market Outlook

5.4.1.1. Market Size & Forecast

5.4.1.1.1. By Value

5.4.1.2. Market Share & Forecast

5.4.1.2.1. By Type

5.4.1.2.2. By Application

5.4.2. Mexico Carbon Dioxide Based Chemicals & Polymer Market Outlook

5.4.2.1. Market Size & Forecast

5.4.2.1.1. By Value

5.4.2.2. Market Share & Forecast

5.4.2.2.1. By Type

5.4.2.2.2. By Application

5.4.3. Canada Carbon Dioxide Based Chemicals & Polymer Market Outlook

5.4.3.1. Market Size & Forecast

5.4.3.1.1. By Value

5.4.3.2. Market Share & Forecast

5.4.3.2.1. By Type

5.4.3.2.2. By Application

6. EUROPE CARBON DIOXIDE BASED CHEMICALS & POLYMER MARKET OUTLOOK

6.1. Market Size & Forecast

- 6.1.1. By Value
- 6.2. Market Share & Forecast
 - 6.2.1. By Type
 - 6.2.2. By Application
 - 6.2.3. By Country
- 6.3. Pricing Analysis
- 6.4. Europe: Country Analysis
 - 6.4.1. Germany Carbon Dioxide Based Chemicals & Polymer Market Outlook
 - 6.4.1.1. Market Size & Forecast
 - 6.4.1.1.1. By Value
 - 6.4.1.2. Market Share & Forecast
 - 6.4.1.2.1. By Type
 - 6.4.1.2.2. By Application
 - 6.4.2. Spain Carbon Dioxide Based Chemicals & Polymer Market Outlook
 - 6.4.2.1. Market Size & Forecast
 - 6.4.2.1.1. By Value
 - 6.4.2.2. Market Share & Forecast
 - 6.4.2.2.1. By Type
 - 6.4.2.2.2. By Application
 - 6.4.3. United Kingdom Carbon Dioxide Based Chemicals & Polymer Market Outlook
 - 6.4.3.1. Market Size & Forecast
 - 6.4.3.1.1. By Value
 - 6.4.3.2. Market Share & Forecast
 - 6.4.3.2.1. By Type
 - 6.4.3.2.2. By Application
 - 6.4.4. France Carbon Dioxide Based Chemicals & Polymer Market Outlook
 - 6.4.4.1. Market Size & Forecast
 - 6.4.4.1.1. By Value
 - 6.4.4.2. Market Share & Forecast
 - 6.4.4.2.1. By Type
 - 6.4.4.2.2. By Application
 - 6.4.5. Italy Carbon Dioxide Based Chemicals & Polymer Market Outlook
 - 6.4.5.1. Market Size & Forecast
 - 6.4.5.1.1. By Value
 - 6.4.5.2. Market Share & Forecast
 - 6.4.5.2.1. By Type
 - 6.4.5.2.2. By Application

7. ASIA-PACIFIC CARBON DIOXIDE BASED CHEMICALS & POLYMER MARKET

OUTLOOK

7.1. Market Size & Forecast

7.1.1. By Value

7.2. Market Share & Forecast

7.2.1. By Type

7.2.2. By Application

7.2.3. By Country

7.3. Pricing Analysis

7.4. Asia-Pacific: Country Analysis

7.4.1. China Carbon Dioxide Based Chemicals & Polymer Market Outlook

7.4.1.1. Market Size & Forecast

7.4.1.1.1. By Value

7.4.1.2. Market Share & Forecast

7.4.1.2.1. By Type

7.4.1.2.2. By Application

7.4.2. Japan Carbon Dioxide Based Chemicals & Polymer Market Outlook

7.4.2.1. Market Size & Forecast

7.4.2.1.1. By Value

7.4.2.2. Market Share & Forecast

7.4.2.2.1. By Type

7.4.2.2.2. By Application

7.4.3. India Carbon Dioxide Based Chemicals & Polymer Market Outlook

7.4.3.1. Market Size & Forecast

7.4.3.1.1. By Value

7.4.3.2. Market Share & Forecast

7.4.3.2.1. By Type

7.4.3.2.2. By Application

7.4.4. South Korea Carbon Dioxide Based Chemicals & Polymer Market Outlook

7.4.4.1. Market Size & Forecast

7.4.4.1.1. By Value

7.4.4.2. Market Share & Forecast

7.4.4.2.1. By Type

7.4.4.2.2. By Application

7.4.5. Australia Carbon Dioxide Based Chemicals & Polymer Market Outlook

7.4.5.1. Market Size & Forecast

7.4.5.1.1. By Value

7.4.5.2. Market Share & Forecast

7.4.5.2.1. By Type

7.4.5.2.2. By Application

8. SOUTH AMERICA CARBON DIOXIDE BASED CHEMICALS & POLYMER MARKET OUTLOOK

8.1. Market Size & Forecast

8.1.1. By Value

8.2. Market Share & Forecast

8.2.1. By Type

8.2.2. By Application

8.2.3. By Country

8.3. Pricing Analysis

8.4. South America: Country Analysis

8.4.1. Brazil Carbon Dioxide Based Chemicals & Polymer Market Outlook

8.4.1.1. Market Size & Forecast

8.4.1.1.1. By Value

8.4.1.2. Market Share & Forecast

8.4.1.2.1. By Type

8.4.1.2.2. By Application

8.4.2. Colombia Carbon Dioxide Based Chemicals & Polymer Market Outlook

8.4.2.1. Market Size & Forecast

8.4.2.1.1. By Value

8.4.2.2. Market Share & Forecast

8.4.2.2.1. By Type

8.4.2.2.2. By Application

8.4.3. Argentina Carbon Dioxide Based Chemicals & Polymer Market Outlook

8.4.3.1. Market Size & Forecast

8.4.3.1.1. By Value

8.4.3.2. Market Share & Forecast

8.4.3.2.1. By Type

8.4.3.2.2. By Application

9. MIDDLE EAST AND AFRICA CARBON DIOXIDE BASED CHEMICALS & POLYMER MARKET OUTLOOK

9.1. Market Size & Forecast

9.1.1. By Value

9.2. Market Share & Forecast

9.2.1. By Type

- 9.2.2. By Application
- 9.2.3. By Country
- 9.3. Pricing Analysis
- 9.4. MEA: Country Analysis
 - 9.4.1. South Africa Carbon Dioxide Based Chemicals & Polymer Market Outlook
 - 9.4.1.1. Market Size & Forecast
 - 9.4.1.1.1. By Value
 - 9.4.1.2. Market Share & Forecast
 - 9.4.1.2.1. By Type
 - 9.4.1.2.2. By Application
 - 9.4.2. Saudi Arabia Carbon Dioxide Based Chemicals & Polymer Market Outlook
 - 9.4.2.1. Market Size & Forecast
 - 9.4.2.1.1. By Value
 - 9.4.2.2. Market Share & Forecast
 - 9.4.2.2.1. By Type
 - 9.4.2.2.2. By Application
 - 9.4.3. UAE Carbon Dioxide Based Chemicals & Polymer Market Outlook
 - 9.4.3.1. Market Size & Forecast
 - 9.4.3.1.1. By Value
 - 9.4.3.2. Market Share & Forecast
 - 9.4.3.2.1. By Type
 - 9.4.3.2.2. By Application
 - 9.4.4. Turkey Carbon Dioxide Based Chemicals & Polymer Market Outlook
 - 9.4.4.1. Market Size & Forecast
 - 9.4.4.1.1. By Value
 - 9.4.4.2. Market Share & Forecast
 - 9.4.4.2.1. By Type
 - 9.4.4.2.2. By Application
 - 9.4.5. Egypt Carbon Dioxide Based Chemicals & Polymer Market Outlook
 - 9.4.5.1. Market Size & Forecast
 - 9.4.5.1.1. By Value
 - 9.4.5.2. Market Share & Forecast
 - 9.4.5.2.1. By Type
 - 9.4.5.2.2. By Application

10. MARKET DYNAMICS

- 10.1. Drivers
- 10.2. Challenges

11. MARKET TRENDS & DEVELOPMENTS

- 11.1. Intense investment for ongoing R&D
- 11.2. Product launches
- 11.3. Merger and Acquisition

12. GLOBAL CARBON DIOXIDE BASED CHEMICALS & POLYMER MARKET: SWOT ANALYSIS

13. PORTER'S FIVE FORCES ANALYSIS

- 13.1. Competition in the Industry
- 13.2. Potential of New Entrants
- 13.3. Power of Suppliers
- 13.4. Power of Customers
- 13.5. Threat of Substitute Type

14. COMPETITIVE LANDSCAPE

- 14.1. Business Overview
- 14.2. Type Offerings
- 14.3. Recent Developments
- 14.4. Financials (As Reported)
- 14.5. Key Personnel
- 14.6. SWOT Analysis
 - 14.6.1. Bayer Material Science
 - 14.6.2. China National Offshore Oil Company (CNOOC)
 - 14.6.3. Empower Materials Inc
 - 14.6.4. Eonic Technologies Ltd
 - 14.6.5. Nanyang Zhongju Tianguan Low Carbon Technology Co., Ltd.
 - 14.6.6. Novomer, Inc.
 - 14.6.7. SK Innovation Co., Ltd
 - 14.6.8. Cardia bioplastics
 - 14.6.9. Covestro AG
 - 14.6.10. Asahi Kasei Advance Corporation

15. STRATEGIC RECOMMENDATIONS

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