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Bio-based Polycarbonate Market Assessment, By Raw Materials [Vegetable Oil, Food Residues, Processed Waste, Plant-Based, Others], By End-user [Electronics, Automotives, Building & Construction, Personal Care &, Others], By Region, Opportunities and Forecast, 2016-2030F

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Abstracts

Bio-based Polycarbonate Market size was valued at USD 75.28 million in 2022, expected to reach USD 145.65 million in 2030 with a CAGR of 8.6% for the forecast period between 2023 and 2030. Conventional polycarbonate resins are made from bisphenol A, which raises the concerns of sustainable goals and innovation shifted to derive alternate polycarbonate from bio or natural resources. Polycarbonates have many applications used alone or blended for numerous sectors like electronics, automotive, housewares, etc. Being produced from natural resources, the features of polycarbonates got enhanced, like delivering excellent optical properties, chemical & UV resistance, higher surface resistance, etc.

Electronics Industry is Augmenting the Bio-based Polycarbonate Market While Concerning the Sustainable Goals

Bio-based polycarbonate copolymer drives the electronics industry by providing sustainable materials and achieving net-zero carbon emissions. It is successively used as a smartphone battery cover, which should be certified by prominent certifications. The bio-based polycarbonate is made of a minimum composition of natural polymers and a maximum content of post-consumer products. Such effective polycarbonates assist in thin-wall injection molding for numerous applications, including electrical housings or health care. SABIC has developed high-performance bio-based

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polycarbonate that comprises around 21% natural polymers (like vegetable oils) and over 50% post-consumer recycled resin, along with pre-consumer recycled carbon fibers. Substantially the product is halogen free and PIN flame retarded and progressively used for electronics packaging.

Data released by the Static PIB states that the global market industry in 2020 is dominantly estimated at around USD 2.9 trillion, which is almost equivalent to India's economy. India is growing exponentially, creating a huge production potential of around USD 25 billion in the electronics industry, around 12% of global investment. A survey data published by the Japan Electronics and Information Technology Industries Association JEITA states that the global electronics and IT industries are estimated to rise 5% in 2022, total to USD 3,536.6 billion.

Automotive Industry is Propelling Exceptionally using Bio-based Polycarbonates

Bio-based polycarbonate possesses unique features like incredible optical properties, high transparency, and phenomenal scratch resistance. These properties are substantially important in the perspective of automotive vehicles. Plant-derived polycarbonates are contributing to developing enhanced vehicle features and appearance with extended durability. These polymer formulations develop additional sustainable benefits supporting the economy and reducing product carbon footprint. Mitsubishi Chemical has developed excellent plant-based bicarbonate resin extensively used for automotive exterior and interior parts. Plant-based isosorbide polycarbonates have excellent optical properties and retain high surface hardness and transparency characteristics, imparting vivid colors in the transparent panels.

The demand for cars in South America has increased by 1.8%, accounting for 2.8 million units sold in 2022, where Brazil is contributing majorly to such a segment. In 2022, Indian passenger car sales rose by 23.1%, achieving 3.8 million units due to effective measures taken by the Indian government like lower interest rates. Taking account of 2023, the outlook for the European market is convincingly showing positive trends to create huge growth for the automotive industry.

Roofing Solutions has Effectively Improved by Incorporating Bio-based Polycarbonates

Bio-based Polycarbonate have successively enhanced the roofing and sliding solution from huge malls to large stadiums. The selection of high-strength and durable panels that enable varying heat and light intensity can lead to the proper architecture of such massive constructions. Palram Industries Ltd. is successfully manufacturing

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polycarbonate flat and corrugated panels for a wide range of applications. Its unique roofing and sliding solutions use proprietary SolarSmart technology which effectively facilitates light penetration selectively. From building huge malls to advancing world-class Olympic stadiums, they have numerous accountings of such projects that provide thermal insulation, heat blocking, chemical resistance, light transmission, and diffusion.

Annual report published by Stadiums Queensland (SQ) stated that during 2021-2022, Stadiums Queensland (SQ) hosted more than 3.4 million patrons across entire venues that substantially contributed more than USD 646 million in economic benefit to the Queensland economy and created around 5,717 FTE jobs for various event-related industries including cleaning, catering, and security.

Impact of COVID-19

The outbreak of COVID-19 has severely impacted numerous sectors and human livelihoods, where every person was vulnerable to infectious disease. The fight against COVID-19 was a challenging operation that evolved every sector to contribute their practices and eradicate the impact. Bio-based polycarbonates are important for developing effective solutions in numerous applications, especially automotive and construction. The pandemic impact was extended to these significant sectors, leading to a complete shutdown of manufacturing units and the delivery of new cars. But after the pandemic, companies invested more to recover the loss during a pandemic, and construction practices also resumed. Therefore, the market for bio-based polycarbonates is on the verge of growing exponentially with such enormous applications.

Key Players Landscape and Outlook

The Bio-based polycarbonate market is successfully growing with the increasing demand for effective roofing solutions and advanced automotive parts. Mitsubishi Chemical Group Corporation has developed plant-based polycarbonate that has impeccable scratch resistance and is a transparent engineering plastic that is extensively used for various automotive interior and exterior parts. The DURABIO product has high surface hardness features and abrasion resistance, a significant improvement over conventional polycarbonate. In September 2021, their product was used for the rear heater control panel of Toyota’s new model fuel cell electric vehicle, which is an eco-friendly vehicle called the “ultimate eco-car.”

For instance, in February 2022, the company’s bio-based polycarbonate proprietary

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product DURABIO has excellent design and durability that is progressively used in pilot ballpoint pens where the incorporation can assist in reducing carbon dioxide emissions from stationary products.

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