

Global Butadiene Market By Product Type (Butadiene Rubber, Styrene Butadiene Rubber, Acrylonitrile Butadiene Rubber, Nitrile Butadiene Rubber, Styrene Butadiene Latex, Hexamethylenediamine), By End User (Automobile Industries, Chemical, Plastics and Polymers, Building & Construction, Consumer Products Industries, Healthcare, Others), By Region, Competition, Forecast and Opportunities, 2028

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Abstracts

The Global Butadiene Market achieved a valuation of USD 12.8 billion in 2022 and is projected to experience robust growth during the forecast period, exhibiting a Compound Annual Growth Rate (CAGR) of 4.00% through 2028. The Global Butadiene market is expected to reach the market size of USD 16.14 billion in 2028. Butadiene, a highly reactive colorless gas, plays a pivotal role in the production of synthetic rubber and plastics. These materials find widespread applications across industries such as automotive, construction, packaging, consumer products, and protective clothing. The market's growth is primarily propelled by factors including increased demand from end-use sectors, cost-effective functionality, and the growing number of automobiles. Moreover, the versatility of butadiene, particularly its exceptional elastic properties used for insulation in the electrical industry, further contributes to market expansion. The utilization of butadiene in the production of tire treads, golf balls, footwear, industrial parts, automotive components, rubber isolators, and various other applications is expected to foster overall market growth. Nonetheless, challenges such as declining production due to shale oil discoveries, potential adverse effects, volatile raw material prices, and stringent regulatory requirements may impede market progress. On a positive note, the rising demand for nylon 66 resin in key industries like automotive and

electronics, coupled with the focus on developing bio-based routes for 1,3 butadiene production, presents promising opportunities for the market.

Key Market Drivers

Growing Demand for Butadiene in the Automotive Industry

Recent years have witnessed a significant transformation in the automotive sector, marked by a shift towards sustainable, efficient, and technologically advanced vehicles. Butadiene, a crucial chemical compound primarily derived from petroleum refineries and hydrocarbon cracking, assumes a pivotal role in synthetic rubber production. This includes widely used variants such as styrene-butadiene rubber (SBR) and polybutadiene rubber (PBR), extensively employed in tire manufacturing, a cornerstone of the automotive domain. Furthermore, butadiene finds applications in various automotive components like hoses, belts, gaskets, and seals, enhancing overall vehicle functionality and safety. Its chemical adaptability also positions it as a crucial building block in plastics, resins, and various chemical intermediates. Stringent emission regulations have catalyzed the development of electric and hybrid vehicles; however, even these alternative propulsion systems rely on butadiene-derived rubber components, highlighting the enduring demand for butadiene in non-combustion engine systems. As automakers strive to enhance fuel efficiency while upholding safety standards, the focus on reducing vehicle weight is intensifying. Lightweight materials, often incorporating plastics and composites derived from butadiene, are gaining traction in pursuit of these goals. Furthermore, the growth of autonomous vehicles mandates advanced sensor and LiDAR technologies, many of which rely on protective butadiene-based plastic materials. With the proliferation of self-driving vehicles, this trend is poised to further stimulate demand. As the automotive industry evolves towards smarter, safer, and more environmentally friendly designs, the pivotal role of butadiene in enabling these advancements becomes increasingly evident. The interconnectedness between the automotive industry and the global butadiene market underscores the significance of collaboration and innovation in shaping the future of transportation.

Rising Demand for Adhesives and Sealants

In recent times, there has been a noteworthy upswing in global demand for butadiene, predominantly driven by the escalating requirement for adhesives and sealants across various sectors. Butadiene, a crucial petrochemical compound, has become an indispensable raw material for producing elastomers, plastics, and other valuable products. The surge in demand can be attributed to the diverse applications of

adhesives and sealants in industries such as automotive, construction, packaging, and electronics. The global emphasis on sustainable infrastructure and energy-efficient buildings has led to the adoption of innovative construction materials and techniques. Adhesives and sealants play a pivotal role in establishing airtight seals, insulating structures, and enhancing overall building performance. As the construction sector continues to expand, the demand for these materials grows in tandem, propelling the need for products derived from butadiene. The packaging and electronics industries are also experiencing a shift towards more advanced and efficient products. Adhesives and sealants play a critical role in ensuring the safety, integrity, and functionality of various packaged goods and electronic devices. In packaging, adhesives provide secure seals for food items, pharmaceuticals, and consumer goods. In electronics, they aid in assembling delicate components, safeguard against moisture and dust, and enhance overall product durability. As these industries evolve, the demand for high-performance adhesives and sealants sourced from butadiene derivatives gains prominence. While the demand for adhesives and sealants continues to rise, there is a growing awareness regarding the environmental impact of conventional petrochemical sources. This awareness has prompted industries to explore more sustainable alternatives, including bio-based and eco-friendly adhesives and sealants. Such a shift may bring about changes in the dynamics of the butadiene market, encouraging the development of innovative production methods and the adoption of alternative raw materials.

Key Market Challenges

Demand-Supply Imbalances

A persistent challenge in the butadiene market is the delicate balance between supply and demand. Butadiene is primarily sourced from crude oil refining or naphtha steam cracking, both intricately linked to the oil and gas sector. Consequently, any disruptions or fluctuations in energy markets can directly impact the supply of butadiene. Conversely, demand is closely tied to the automotive industry, which consumes a substantial portion of global butadiene production for tire manufacturing. Consequently, fluctuations in automotive manufacturing and tire production can lead to demand shocks within the market. The interplay of these factors often results in supply-demand imbalances, contributing to price volatility and affecting the profitability of downstream industries.

Energy Price Volatility

Energy prices, particularly crude oil and natural gas, form the bedrock of the

petrochemical industry. Butadiene, a pivotal feedstock in synthetic rubber production, is obtained through the steam cracking process of naphtha, a component of crude oil. As a result, fluctuations in crude oil prices directly influence the cost of butadiene production. Additionally, natural gas prices impact propylene production, another crucial feedstock for butadiene, as well as the overall operational costs of petrochemical facilities. Butadiene is a globally traded commodity, with supply chains spanning multiple countries and regions. Sudden shifts in energy prices can disrupt these supply chains, resulting in production and distribution delays. Manufacturers may encounter difficulties in securing a consistent supply of raw materials, impacting their capacity to meet customer demands and fulfill contractual commitments.

Key Market Trends

Advancements in Technology

One of the most notable trends in the butadiene market is the growing emphasis on sustainable production processes. Conventional methods of butadiene production, such as naphtha or hydrocarbon feedstock steam cracking, often demand substantial energy and lead to significant emissions. However, advancements in catalyst technology and process optimization are yielding more environmentally friendly production methods. These include innovative techniques like bio-based butadiene production from renewable feedstocks and the adoption of carbon capture and utilization (CCU) technologies, effectively reducing the carbon footprint associated with butadiene production. Moreover, catalysts play a pivotal role in butadiene production. Recent progress in catalyst design and engineering has resulted in improved selectivity, higher yields, and reduced energy consumption in the synthesis process. Catalysts are now tailored to specific reactions and conditions, resulting in a more efficient and sustainable approach to butadiene synthesis.

Segmental Insights

Type Insights

In 2022, the market for Butadiene was predominantly led by styrene butadiene rubber and is anticipated to continue its expansion in the years ahead. Styrene Butadiene Rubber (SBR), derived from butadiene and combined with natural rubber, serves as the primary constituent in tire manufacturing. The physical and chemical properties of these rubber polymers contribute to tire performance aspects such as rolling resistance, wear, and traction. In various industrial applications, SBR rubber is commonly employed as a

direct substitute for natural rubber. Noteworthy attributes of SBR include exceptional aging characteristics, crack resistance, and abrasion resistance. Moreover, styrene-butadiene exhibits remarkable resistance to water and compression set. Initially developed as a synthetic copolymer to replace natural rubber in tires, SBR is produced through the combination of BD with styrene. Presently, SBR, in conjunction with natural rubber, accounts for a significant 90% of global rubber consumption. Its utilization spans scenarios involving water, hydraulic fluids, or alcohol, with applications ranging from tires and tubes to compressors and conveyor belt coverings.

End User Insights

In 2022, the automobile industries segment dominated the Butadiene market and is expected to sustain its expansion in the foreseeable future. Butadiene finds extensive use in the production of synthetic rubbers and elastomers, such as polybutadiene rubber (PBR), nitrile rubber (NR), styrene-butadiene rubber (SBR), and polychloroprene (Neoprene). These materials are subsequently employed in manufacturing a wide array of goods and raw materials. When butadiene-based rubber is used as a starting material, it becomes a crucial component of acrylonitrile-butadiene-styrene (ABS) resin, which finds diverse applications in plastics production. Notably, polybutadiene is widely used in tire manufacturing, accounting for over 70% of all tires produced globally. Its application in tires, particularly in sidewalls, helps reduce strain caused by continuous bending during use. Consequently, the demand for butadiene in the automotive sector is projected to grow in the foreseeable future.

Regional Insights

The Asia Pacific region has emerged as the leader in the Global Butadiene Market. The anticipated growth rate during the forecast period is projected to be the highest in this region, propelled by rapid industrialization and increased demand for butadiene in automotive and rubber applications. Among the countries in the region, China stands out as the fastest-growing market, consuming the largest amount of butadiene, followed by India and other South-East Asian nations. This growth can be attributed to the flourishing car manufacturing industry. According to the China Association of Automobile Manufacturers (CAAM), sales and production of commercial vehicles reached 501,000 and 468,000 units in April 2021, respectively, representing significant growth of 91% and 73.8% compared to March. These trends create promising opportunities for participants in the butadiene market. Additionally, the expanding utilization of butadiene derivatives in the textile industry for producing shoes, gloves, and belts is also contributing to the regional market's expansion.

Key Market Players

China Petroleum & Chemical Corporation

Royal Dutch Shell Plc

Borealis AG.

Versalis S.p.A.

Eni S.p.A.

Evonik Industries AG

Ineos Group AG

LANXESS AG

LyondellBasell Industries Holdings B.V.

LG Chem Ltd.

Report Scope:

In this report, the Global Butadiene Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Butadiene Market, By Product Type:

Butadiene Rubber

Styrene Butadiene Rubber

Acrylonitrile Butadiene Rubber

Nitrile Butadiene Rubber

Styrene Butadiene Latex

Hexamethylenediamine

Butadiene Market, By End User:

Automobile Industries

Chemical

Plastics and Polymers

Building & Construction

Consumer Products Industries

Healthcare

Others

Butadiene Market, By Region:

Asia Pacific

North America

Europe

Middle East & Africa

South America

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Butadiene Market.

Available Customizations:

Global Butadiene Market By Product Type (Butadiene Rubber, Styrene Butadiene Rubber, Acrylonitrile Butadiene R...

Global Butadiene Market report with the given market data, Tech Sci 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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