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Encapsulants Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Chemistry (Epoxy Encapsulant, Urethane Encapsulant and Silicone Encapsulant), By Curing Type (Heat Cure, UV Cure and Room Temperature Cure), By End-Use Industry (Consumer Electronics, Energy & Power, Transportation, Medical and Others), By Region & Competition, 2021-2031F

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Abstracts

The Global Encapsulants Market is expected to expand from USD 5.61 Billion in 2025 to USD 8.93 Billion by 2031, registering a compound annual growth rate (CAGR) of 8.06%. Encapsulants—which include specialized polymeric materials like potting compounds, gels, and resins—are designed to shield sensitive solar cells and electronic components from environmental hazards such as dust, moisture, mechanical vibration, and thermal shock, ensuring extended durability and operational integrity. This market expansion is primarily fueled by the rising global need for renewable energy systems, especially solar photovoltaic panels, alongside the ongoing growth in consumer electronics that demand reliable protection for increasingly miniaturized devices. Additionally, the automotive industry's growing shift toward electric vehicles heavily supports market demand, as these vehicles require durable encapsulation solutions for their battery systems.

Despite these strong growth indicators, market expansion is considerably hindered by the ongoing volatility in the prices of essential raw materials like epoxy resins and ethylene vinyl acetate. These unpredictable costs directly affect production expenses and squeeze manufacturers' profit margins, making it difficult to maintain competitive pricing and ultimately restricting broader market growth. Nevertheless, the scale of key

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applications continues to rise; for instance, SolarPower Europe reported that the European Union successfully deployed 65.1 GW of new solar photovoltaic capacity in 2025.

Market Driver

The Global encapsulants market is heavily propelled by escalating demand within the semiconductor and electronics sectors, fueled largely by the trend toward high-density packaging and the miniaturization of electronic devices. As components shrink and grow in complexity, there is a heightened requirement for sophisticated encapsulants that guarantee dielectric stability, facilitate thermal management, and deliver outstanding defense against environmental hazards. Such materials are vital for enhancing the dependability and service life of delicate circuits utilized in communication networks, computing, and consumer electronics. Highlighting this expanding application base, the Semiconductor Industry Association (SIA) reported in February 2025 that global semiconductor sales hit $627.6 billion in 2024, representing a 19.1% surge compared to the previous year.
Another primary catalyst for the encapsulants market is the rapid acceleration of the electric vehicle (EV) industry. Specialized encapsulants play a critical role in shielding essential EV components—such as sensors, power electronics, and battery modules—from severe operational environments characterized by moisture, intense vibrations, and extreme temperature fluctuations. This reliable protection is necessary to maintain the longevity, efficiency, and safety of automotive battery systems. According to the International Energy Agency (IEA) in April 2024, global EV sales were anticipated to hit roughly 17 million units that year, reflecting a 21% jump from 2023 and driving a corresponding surge in demand for targeted encapsulation products. Furthermore, the International Renewable Energy Agency (IRENA) noted in March 2024 that global renewable power capacity grew by 473 GW in 2023, illustrating an overarching industrial movement toward durable, well-protected energy infrastructure that relies on these advanced materials.

Market Challenge

A major obstacle impeding the expansion of the global encapsulants market is the ongoing volatility in the cost of essential raw materials. Since substances like epoxy resins and ethylene vinyl acetate are fundamental to manufacturing encapsulants, any instability in their pricing immediately affects overall production expenses. This financial unpredictability complicates budgeting and cost control for manufacturers, resulting in fluctuating operational costs that inevitably shrink their profit margins.

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Consequently, these tightened profit margins restrict the ability of manufacturers to offer competitive pricing for their encapsulant solutions. This limitation complicates efforts to retain current market share or draw in new clients, particularly during downturns in demand or when competing against alternative products. Highlighting the root of these pressures, the European Chemical Industry Council (Cefic) reported in 2025 that natural gas prices in Europe were triple those in the United States, severely burdening regional chemical suppliers who produce these vital encapsulant ingredients. Such stark differences in energy expenses directly fuel the worldwide instability of raw material costs, ultimately stunting market growth by rendering these materials less financially practical for end-users.

Market Trends

A prominent trend within the industry is the shift toward sustainable, bio-based encapsulants, motivated by rising ecological awareness and strict regulations aimed at lowering carbon emissions. This transition compels manufacturers to develop eco-friendly materials derived from renewable sources that can match traditional encapsulants in terms of optical clarity, adhesion, and protective capabilities. Additionally, these greener alternatives are required to comply with rigorous industry benchmarks for long-term durability. Underscoring this momentum, European Bioplastics (EUBP) reported in December 2025 that the global production capacity for biobased plastics is expected to double, climbing from 2.31 million tonnes in 2025 to roughly 4.69 million tonnes by 2030, which reflects robust commercial demand for sustainable solutions.
A further critical trend is the growing utilization of specialized encapsulants for bifacial solar modules, spurred by the need to maximize energy output in solar photovoltaic systems. Because bifacial panels capture sunlight and generate power from both their front and rear surfaces, they require advanced encapsulation materials that provide exceptional UV resistance and high optical transparency on both sides. This dual-sided functionality ensures efficient light transmission and long-term protection of the solar cells against heightened environmental exposure, steering the market toward resilient materials designed to optimize energy yield. Highlighting the growth of such advanced solar technologies, the International Renewable Energy Agency (IRENA) noted in April 2026 that global solar installations achieved a 27.2% annual increase, hitting 511 GW in 2025.

Key Market Players

Resonac Holdings Corporation

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DOW Corning Corporation

Lord Corporation

Panasonic Holdings Corporation

Epic Corporation

Sumitomo Bakelite Co. Ltd.

H.B. Fuller Company

Shin-Etsu Chemical Co., Ltd.

The 3M Company

BASF SE

Report Scope

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

Encapsulants Market, By Chemistry

Epoxy Encapsulant

Urethane Encapsulant

Silicone Encapsulant

Encapsulants Market, By Curing Type

Heat Cure

UV Cure

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India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

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

Available Customizations:

Global Encapsulants 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

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

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