

# **Renewable Epoxy Resins Market Forecasts to 2034 – Global Analysis By Raw Material Source (Plant and Vegetable Oils, Lignin-derived Epoxies, Rosin and Terpene-derived Epoxies, Furan-based Epoxy Systems, Carbohydrate-derived Epoxies, and Other Renewable Feedstocks), Product Type, Application, Curing Mechanism, End User and By Geography**

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## **Abstracts**

According to Statistics MRC, the Global Renewable Epoxy Resins Market is accounted for \$2.8 billion in 2026 and is expected to reach \$5.3 billion by 2034 growing at a CAGR of 8.3% during the forecast period. Renewable epoxy resins refer to high-performance thermosetting polymers derived from renewable biological resources, such as plant oils, lignin, and carbohydrates, rather than petroleum feedstocks. These resins offer similar mechanical, thermal, and chemical resistance properties to traditional bisphenol-A (BPA) based epoxies but with a significantly lower carbon footprint and reduced toxicity. The technology encompasses advanced chemical synthesis and bio-fermentation processes that convert biomass into epoxy precursors and curing agents. Renewable epoxy resins serve wind energy, electronics, aerospace, and construction industries seeking sustainable, high-performance materials for composites, coatings, and adhesives.

## **Market Dynamics:**

### **Driver:**

**Growing demand for sustainable composites in wind energy and aerospace**

The rapid expansion of the wind energy sector and the increasing use of lightweight composites in aerospace are driving demand for renewable epoxy resins. Wind turbine blades and aerospace components require high-performance resins that offer excellent mechanical strength, fatigue resistance, and durability. Renewable epoxy resins, derived from plant oils and lignin, provide a sustainable alternative to petrochemical epoxies without compromising performance. The alignment of renewable epoxies with corporate sustainability mandates and net-zero commitments strengthens the business case for their adoption in high-value composite applications.

## **Restraint:**

### **Higher production costs and limited feedstock availability**

The production of renewable epoxy resins typically commands a price premium compared to conventional BPA-based epoxies due to higher raw material costs and smaller production scales. The availability of high-quality, consistent bio-based feedstocks, such as specific plant oils and lignin, can be limited and subject to price volatility. The complex chemical synthesis and purification processes required for renewable epoxies often result in higher manufacturing costs. These economic factors limit the widespread substitution of conventional epoxies in price-sensitive, high-volume applications.

## **Opportunity:**

### **Development of lignin-derived and furan-based epoxy systems**

Advancements in the extraction and chemical modification of lignin and furans present substantial opportunities to expand the portfolio of renewable epoxy resins. Lignin, a major component of wood, is an abundant, low-cost feedstock that can be converted into high-performance epoxy precursors. Furan-based epoxies, derived from carbohydrates, offer excellent thermal stability and chemical resistance. Companies that develop scalable processes for producing lignin-derived and furan-based epoxies will capture significant market share in high-performance, sustainable composite applications.

## **Threat:**

### **Performance gaps in extreme operating conditions**

Despite significant advancements, some renewable epoxy resins may exhibit performance gaps compared to their petrochemical counterparts in extreme operating

conditions, such as high temperatures, high humidity, or exposure to harsh chemicals. The need for extensive testing and reformulation to ensure that renewable epoxies meet the stringent performance requirements of aerospace and automotive applications increases development time and costs. These technical barriers can slow adoption in highly specialized, mission-critical applications where failure is not an option.

### **Covid-19 Impact:**

The pandemic initially disrupted agricultural supply chains and delayed capital investments in new renewable epoxy production facilities. However, the crisis heightened global awareness of supply chain resilience and environmental sustainability, strengthening long-term corporate commitments to renewable materials. Post-pandemic, the sustained focus on green recovery and the expansion of renewable energy infrastructure has reinforced the value of renewable epoxy resins. The integration of renewable epoxies into essential supply chains continues to drive market growth.

### **The plant and vegetable oils segment is expected to be the largest during the forecast period**

The plant and vegetable oils segment is expected to account for the largest market share during the forecast period, due to their abundance, low cost, and well-established extraction and chemical modification processes. Plant oils, such as soybean, linseed, and castor oil, serve as foundational feedstocks for producing a wide range of renewable epoxy resins and curing agents. The segment benefits from established agricultural supply chains and broad regulatory acceptance. High availability and cost-effectiveness support market dominance in general-purpose renewable epoxy applications.

### **The lignin-derived epoxies segment is expected to have the highest CAGR during the forecast period**

Over the forecast period, the lignin-derived epoxies segment is predicted to witness the highest growth rate, driven by the increasing focus on utilizing waste biomass and the superior thermal and mechanical properties of lignin-based resins. Lignin, a byproduct of the paper and pulp industry, offers a low-cost, abundant feedstock for producing high-performance epoxy precursors. Advances in lignin extraction and chemical modification technologies have improved the consistency and performance of lignin-derived epoxies. The segment aligns with the broader industry shift toward circular economy principles

and waste valorization.

## **Region with largest share:**

During the forecast period, the North America region is expected to hold the largest market share, due to strong regulatory frameworks promoting green chemistry, high corporate sustainability commitments, and the presence of leading renewable epoxy manufacturers. The United States leads with significant investments in biorefinery infrastructure and advanced biochemical research. Favorable government incentives for renewable material development and strong consumer demand for sustainable products drive market development. Robust agricultural feedstock availability supports large-scale production.

## **Region with highest CAGR:**

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR, driven by rapid industrialization, increasing environmental awareness, and strong government initiatives promoting green manufacturing. China and India represent major growth markets with expanding renewable epoxy production capacities and rising demand for sustainable composites in wind energy and electronics. Local manufacturers are leveraging abundant agricultural feedstocks to develop cost-effective renewable epoxy solutions. The region's dominance in global chemical manufacturing sustains strong demand growth.

## **Key players in the market**

Some of the key players in Global Renewable Epoxy Resins Market include 3M Company, Hexion Inc., Olin Corporation, Huntsman Corporation, Sika AG, Aditya Birla Chemicals, Atul Ltd., Kukdo Chemical Co., Ltd., Nan Ya Plastics Corporation, Kolon Industries, Inc., DIC Corporation, Mitsubishi Chemical Corporation, Solvay S.A., Arkema Group, Reichhold LLC, Allnex Group, Chang Chun Group, and Cardolite Corporation.

## **Key Developments:**

In May 2026, Hexion Inc. launched a new line of lignin-derived epoxy resins specifically designed for wind turbine blade applications, offering superior fatigue resistance and a 30% reduction in carbon footprint.

In April 2026, Sika AG expanded its renewable epoxy portfolio in Europe, introducing a

new bio-based curing agent optimized for high-performance aerospace composites with improved thermal stability.

In March 2026, Cardolite Corporation partnered with a leading electronics manufacturer to co-develop a furan-based epoxy system that enhances the thermal resistance and sustainability of printed circuit boards.

## **Raw Material Sources Covered:**

- Plant and Vegetable Oils
- Lignin-derived Epoxies
- Rosin and Terpene-derived Epoxies
- Furan-based Epoxy Systems
- Carbohydrate-derived Epoxies
- Other Renewable Feedstocks

## **Product Types Covered:**

- 100% Bio-based Epoxy Resins
- Hybrid Renewable Epoxy Systems
- Recycled-Content Epoxy Resins
- Waterborne Renewable Epoxies
- Solvent-free Renewable Epoxies
- Other Product Types

## **Applications Covered:**

Wind Energy Turbine Blades

Electronics and Electrical Laminates

Aerospace and Automotive Composites

Marine and Protective Coatings

Structural Adhesives and Sealants

Other Applications

## **Curing Mechanisms Covered:**

Amine-cured

Anhydride-cured

UV-cured

Thermal-cured

Moisture-cured

Other Mechanisms

## **End Users Covered:**

Renewable Energy Developers

Electronics and Semiconductor Manufacturers

Aerospace and Defense Contractors

Construction and Infrastructure Firms

Marine and Shipbuilding

Other End Users

## **Regions Covered:**

North America

United States

Canada

Mexico

Europe

United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

Qatar

Israel

Rest of Middle East

Africa

South Africa

Egypt

Morocco

Rest of Africa

## What our report offers:

Market share assessments for the regional and country-level segments

Strategic recommendations for the new entrants

Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034

Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)

Strategic recommendations in key business segments based on the market estimations

Competitive landscaping mapping the key common trends

Company profiling with detailed strategies, financials, and recent developments

Supply chain trends mapping the latest technological advancements

## **Free Customization Offerings:**

**All the customers of this report will be entitled to receive one of the following free customization options:**

### **Company Profiling**

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

### **Regional Segmentation**

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

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