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Japan Thermoset Plastics Market Assessment, By Type [Phenol Formaldehyde Resins, Unsaturated Polyesters, Polyurethanes, Phenolic, Epoxy, Amino, Alkyd, Vinyl Ester, Others], By Processing Method [Compression Molding, Injection Molding, Filament Winding, Others], By Application [Adhesive and Sealants, Pipelines, Insulation, Automobile Components, Electronic Components, Others], By End-use Industry [Transportation, Electrical and Electronics, Oil and Gas, Steel, Others], By Region, Opportunities and Forecast, FY2018-FY2032F

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Abstracts

Japan thermoset plastics market is expected to observe a CAGR of 5.38% during the forecast period FY2025-FY2032, rising from USD 5,107.88 million in FY2023 to USD 8,204.15 million in FY2032F. The growth of the market can be attributed to the quick development of the utilization of engineering plastics.

By FY2032, the thermoset plastics market in Japan is anticipated to grow due to the application of thermoset plastics market in Japan, driven by the nation's ongoing development of its bio-based phenolic resins utilizing lignin and the quick development of integrated molding technology for carbon fiber-reinforced plastic. Therefore, it’s predicted that these developments would raise the need for thermoset polymers in several industries including steel, fertilizers, and the automobile industry.

Due to Japan's stringent waste management and recycling laws, recycling technology

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and sustainable thermoset polymers are developing. NIPPON STEEL Chemical & Material Co., Ltd. supplies thermoset resin materials to enhance the durability and corrosion resistance of coatings applied to industrial facilities, bridges, and pipelines. This helps increase the demand for thermoset plastics.

For instance, Mitsui Chemicals Inc. and Microwave Chemical Co., Ltd. are developing chemical recycling technology using microwaves. Microwaves, used as household ovens and telecommunications, can directly and selectively transfer energy to materials, making conventional chemical processes more energy efficient. Environmentally friendly technology can reduce CO2 emissions and generate energy from renewable sources.

Saturated polyester resins, epoxy resins, and polyurethane foam manufacturing have increased significantly in the market, indicating a persistent need for these materials. Recent business changes that may affect the direction of thermoset plastic market in the future include advancements in manufacturing technology and the emergence of eco-friendly alternatives.

For instance, Daicel Corporation, specialist in innovative thermoset plastics solutions, is serving several industries including automotive, electronics, construction, and healthcare. Automotive parts, electrical components, building materials, and medical devices employ phenolic resins, epoxy resins, and polyurethane systems. Due to its concentration on these areas, Daicel is a reliable partner for companies looking for high-performance thermoset plastics solutions. It helps to propel innovation and sustainable growth in Japan's industrial sector.

Thermoset Plastics Revolutionize Vehicle Lightweighting in EVs

Advance development in lightweight electric vehicles (EVs) has surged Japan's thermoset plastic market. Players in Japan's thermoset market are collaborating to develop advanced thermoset resin molding, while companies such as Nissei Plastic aim to optimize the injection pressure, which can help manufacturers create parts with tighter tolerances and improved quality. Overall, Japan's automotive sector shows a bigger trend towards lightweight vehicles and sustainability, which can significantly impact the EV manufacturing while increasing the demand for thermoset plastics.

For instance, Celanese Corporation has launched two new polyamide solutions for electric vehicle powertrain components and battery applications. The Frianyl PA W-series flame-retardant polyamide solutions enable the production of large, thick-walled components for EV batteries. These solutions improve safety, design, and

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manufacturing efficiency. Applications include battery module housings and electronic box housings. The Frianyl PA W Series solutions have an excellent relative tracking index even after 1,000 hours of aging at 125 degrees Celsius. They offer remarkable long-term color stability, without visible changes to the naked eye or color laboratory measurements.

Wind Energy Industry Fuels Japan Thermoset Plastics Market Size

Wind energy generation promotes sustainability and economic progress by accelerating income creation through sophisticated recycling techniques in the thermoset plastics market. For instance, according to the Japan Wind Power Association (JWPA), by the end of FY2023, Japan's total installed wind power capacity reached 5,213.4 MW. Due to breakthrough methods in small-molecule assistance, it is now possible to recycle wind turbine blades with up to 100% resin degradation yield for waste composite materials. Furthermore, as Japan and other countries increase their investments in wind power, using carbon fiber composites may generate economic growth while supporting sustainability in the market.

Increasing Utilization of Epoxy in Thermoset Plastics Dominates Japan Thermoset Plastics Market

Epoxy resins are essential thermoset polymers with unique characteristics and can be used in a wide temperature range. Epoxy has the highest contribution in Japan thermoset plastics market due to increasing use of epoxy in electrical components, paintbrush manufacturing, adhesives for structural usage, metal coatings, and high-tension electrical insulators increasing the demand of epoxy in thermoset plastics market in Japan. For instance, DIC's epoxy resin curing agent, which can withstand temperatures up to 200 degrees Celsius and is recyclable, makes it easier to remold thermoset plastics, which were previously difficult to recycle.

Adoption of Injection Molding Technology in Japan Thermoset Plastics

As per the processing type, injection molding holds dominant market share due to its increasing usage in thermoset plastics leading to chemical crosslinking and hardening of polymer. Thermoset injection molding equipment generally includes a hydraulically driven clamping device for mold closure and an injection device for conveying materials, producing thermoset plastics used in the automobile industry and medical devices. Injection moldings offer advantages such as high production efficiency, intricate design capabilities, and consistent quality, making it a favored option among manufacturers for

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a wide range of applications.

South Japan Become the Highest Contributor in the Market

In 2024, the southern region of Japan has the highest share in Japan thermoset plastics market, followed by the north region. Japan's regions are expected to experience a rise in power generation sector which will fuel the advancement of thermoset plastics. Thermoset plastics are successively employed in numerous applications, significantly contributing to the efficiency and reliability of power generation processes. For instance, NIPPON STEEL Chemical & Material Co., Ltd operates manufacturing plants across Japan, including Tokyo, Osaka, and Nagoya. The company continuously develops advanced technology and production capabilities to meet the demand for thermoset plastics.

Future Market Scenario (FY2025 – FY2032F)

As per Japan thermoset plastic market analysis, the demand for thermoset plastics will significantly increase over the forecast period, owing to rising demand from key End-use industries, including transportation, automotive, marine, aviation, power generation, oil, refinery, and others. Thermoset materials play a crucial role in the rising research and development activities for construction of wind turbine blades, solar panels, and other renewable energy infrastructure. For instance, the expansion of wind power generation capacities has expanded from 6.5 GW in FY2018 to 8.2 GW in FY2021 and solar power capacity has increased from 15.9 GW in FY2018 to 27.9 GW in FY2021. Additionally, thermoset plastics are heavily utilized for tanks, corrosion-resistant pipes, and insulation materials in the oil and refinery industries. As Japan continues to invest in infrastructure development and modernization of its oil and refinery facilities the demand for thermoset materials is expected to rise. Also, thermoset polymers are preferred within the maritime and aviation sectors because of their high strength-to-weight ratio and resistance to corrosion. Japan is predicted to become a maritime and aerospace-focused nation, which will increase demand for thermoset composites in shipbuilding, aircraft interiors, and structural components.

For instance, Daicel Corporation and Polyplastics Co., Ltd. partnered together to innovative thermoset plastic products with improved mechanical strength, flame retardancy, and heat resistance. The collaboration helps strengthen the companies' competitive positions and differentiation in thermoset plastics market through technological leadership and product innovation, which will enhance their competitive standing in the thermoset plastics industry by means of technological leadership and

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product innovation.

Similarly, Microwave Chemical Co., Ltd. and Mitsui Chemicals Inc. are creating chemical recycling technology that can lower CO2 emissions and increase the energy efficiency of existing chemical operations using microwaves. The firm is engaged in the chemical recycling of plastics, including thermosetting sheet molding compound, flexible polyurethane foam, and waste from car shredders. Both businesses want to begin demonstration testing shortly following verification testing at a bench facility since early tests have yielded encouraging findings. The objective is to transform difficult plastic waste streams into premium materials that won't sacrifice quality and are appropriate for delicate applications.

Key Players Landscape and Outlook

The leading manufacturers in Japan thermoset plastics market are Mitsui Chemicals, Inc., KISCO Ltd., NIPPON STEEL Chemical & Materials, and others. The growth of the market is supported by the rapid expansion of the product portfolio by various companies, moving towards collaborations or acquisitions, new product development, and adopting other strategies which in turn will boost the demand for thermoset plastics market in Japan. For instance, in 2020, Daicel Corporation, one of the major players in Japan, acquired Celanese Corporation's engineering plastics business section for USD 1.58 billion to diversify into more sophisticated engineering plastics and create new products. It is a calculated risk that should increase the company's resilience in the supply chain and its market competitiveness.

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