Composite Testing - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

The Composite Testing Market size is estimated at USD 2.58 billion in 2025, and is expected to reach USD 3.65 billion by 2030, at a CAGR of 7.16% during the forecast period (2025-2030).

Composites are becoming increasingly vital in contemporary applications. Their benefits encompass lightweight characteristics, resistance to corrosion, elevated fatigue strength, and faster assembly processes. Significantly, composites boast a strength-to-weight ratio that outperforms most metals. To illustrate, a cubic foot of cast steel tips the scales at approximately 490 pounds, whereas composites can achieve a weight reduction of up to 70%. This focus on lightweight materials drives the composite testing market expansion, particularly within the aerospace, automotive, and construction sectors.

The Need For Maintaining Quality Standards Of The Composite Materials Is Creating A Growth Opportunity For The Market

Key Highlights
- Composite testing is vital for laboratory product evaluations, confirming that products fulfil their intended functions. Rather than evaluating each product component in isolation, composite testing evaluates groups of components collectively. This method streamlines the testing process and yields significant time and cost savings. Retesting the individual components becomes unnecessary when a composite group passes a test. Driven by rigorous testing standards, industries like aerospace, defense, automotive, and wind energy increasingly embrace composites. Due to their superior performance and strength, composites are now integral to vehicle applications.
- Product innovations in the composite material landscape are bolstering market demand. For instance, in September 2024, Lucideon, an organization specializing in materials technology, processes, and testing, announced a partnership with Technetics Group. Together, they are working on NASA-patented materials to craft an advanced dynamic seal across diverse applications.

These advanced materials cater to critical applications, enduring extreme temperatures and rapid rotation speeds across multiple markets. Their development necessitates heightened use of advanced ceramic processing equipment, ensuring precise and consistent testing conditions. This, in turn, amplifies the demand for composite testing solutions in the market.

Recyclability Challenges Of Composite Materials Will Raise The Concern Of Environmental Sustainability Issues

Key Highlights
- Composites are used for their strength-to-weight ratio and durability. Their recycling faces challenges, primarily due to material complexity. Being a blend of various, often chemically bonded materials, separating these constituents during recycling proves to be a daunting task. Moreover, the absence of standardized recycling processes and regulations for composite materials further stifles widespread recycling efforts, potentially stunting market growth. However, with rising sustainability concerns and the push for these materials to integrate into the circular economy, researchers and industry leaders are actively pioneering innovative recycling methods.
- As global environmental concerns intensify, the composite industry is witnessing a significant rise in the adoption of bio-based materials. For instance, driven by urgent environmental and sustainability goals, there's an escalating demand for bio-based composites, especially in the infrastructure and construction sectors. Furthermore, heightened environmental mandates and dwindling resources in industries such as automotive and aerospace are steering a pronounced emphasis on developing innovative, eco-friendly composite materials. This trend is not going unnoticed, as it opens up lucrative avenues, prompting numerous companies to channel investments into the market.

Composite Testing Market Trends

Automotive Industry to be the Fastest Growing End User

- Composite testing has become one of the crucial inspection services in the automotive industry due to the growing adoption of advanced composite materials. Advanced composite materials have transformed the automotive industry, boosting vehicle performance with cutting-edge structural designs and enhanced mechanical properties.
- Notably, carbon fiber and honeycomb structures, as advanced composites, provide a high strength-to-weight ratio, allowing for a significant reduction in vehicle mass. This reduction translates to improved fuel efficiency and diminished emissions. Furthermore, composites boast superior corrosion resistance over metals, bolstering the longevity and durability of automotive components. Given the rising innovations and surging demand for these materials in automotive applications, the market is poised for robust growth.
- Composite materials play a crucial role in the evolving landscape of vehicle design, highlighting their significance in enhancing efficiency and leading innovation in the automotive sector. By combining diverse elements, these materials produce strong, lightweight components that markedly improve fuel efficiency and overall performance. As the demand for fuel-efficient and high-performing vehicles surges, the automotive industry is increasingly turning to these advanced composites. Not only are these composites transforming car manufacturing, but they're also bolstering performance while minimizing environmental footprints. With rising automotive sales and heightened investments in vehicle production, the market is poised for significant growth.
- Composite materials, especially carbon fiber, are making waves in automotive manufacturing. The automotive industry is increasingly favoring composites made from carbon fiber and resins. The benefits of these materials align closely with the specific needs of automotive manufacturing. As investments in carbon fiber composites for automotive applications rise, they're poised to significantly shape market dynamics.
- The future of composite materials in electric vehicles (EVs) is poised to significantly influence the automotive sector. As the industry shifts towards a more sustainable model aligned with a low-carbon economy, the utilization of composites in EVs is

advancing swiftly. Numerous countries are observing substantial increases in EV sales across diverse regions, including North America, Asia-Pacific, Europe, and beyond.
- For example, the International Energy Agency (IEA) reported that in 2023, China led the Asia-Pacific region in electric car sales, achieving over eight million units sold. Moreover, according to Argonne National Laboratory, in 2023, the United States saw plug-in electric vehicle (PEV) sales approach the 1.5 million mark, with sales of both all-electric and plug-in hybrid electric vehicles hitting their zenith.

Asia Pacific to Register Major Growth

- The Asia-Pacific composite testing market is influenced by distinct regional traits, each playing a role in shaping its growth trajectory. East Asia, which includes powerhouses like China, Japan, and South Korea, stands out as a frontrunner. This dominance is attributed to their embrace of cutting-edge technologies, strong manufacturing prowess, and considerable consumer expenditure. Notably, China's expansive population and swiftly advancing industries are pivotal in driving this demand.
- For example, in July 2024, Volkswagen unveiled the ID. Unyx, marking the debut of its new sub-brand tailored exclusively for China. This move aligns with Volkswagen's 'In China, for China' strategy. The ID. Unyx, an all-electric e-SUV coupe, boasts a contemporary design and features a customizable AI-driven 3D assistant. Notably, this model is both developed and produced at Volkswagen's state-of-the-art facilities in Hefei, China.
- Further, In October 2024, ULVAC, Inc., a global leader in comprehensive vacuum manufacturing, inaugurated its Technology Center PYEONGTAEK in Pyeongtaek, Gyeonggi-do, South Korea. This center is set to spearhead the evolution of next-generation semiconductor manufacturing equipment and processes, working closely with South Korean clients, and is also focused on establishing mass production technologies.
- Southeast Asia's composite testing demand is on a growth trajectory, buoyed by urbanization, rising disposable incomes, and a swelling middle class. Countries like Indonesia, Vietnam, and Thailand are stepping into the limelight, drawing investments and nurturing innovation.
- Demand is surging due to activities such as a significant meeting that took place in Central Jakarta in September 2024. Indonesian and French officials, alongside industry experts, deliberated on the construction and operational support for two Scorpene Evolved submarines. These submarines are set to be operated by the Indonesian Navy (TNI AL). This gathering underscored a pivotal moment in the bilateral agreement, emphasizing Indonesia's commitment to domestically constructing the two Scorpene Evolved submarines.

Composite Testing Industry Overview

In the market studied the competitive rivalry between various firms depends on price, product, market share, and the intensity with which they compete. In the composite testing market, incumbents, such as Composites Testing Laboratory, Element Materials Technology, Intertek Group PLC, and others, account for the largest market shares. The market is highly competitive and consolidated; major vendors hold significant market shares.

These companies strongly influence the market in terms of R&D and consolidation activities. Furthermore, the composite service in the market studied can be characterized by moderate levels of market penetration. Additionally, few regional players are entering the market to leverage the local demand in the end-user sector, such as building and construction.

Innovation can give companies a sustainable competitive advantage. Market incumbents have adopted powerful competitive strategies based on product differentiation, market expansion, and mergers and acquisitions. The exit barriers in the market are high due to the high costs involved in operations.

The firm concentration ratio is projected to grow steadily over the forecast period. High dominance by a few market incumbents is expected to be detrimental to the market's overall profitability. Overall, the intensity of competitive rivalry is high and expected to increase in the forecast period.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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