# 2024 Advanced Materials Research Review

Market Research Report | 2025-04-16 | 143 pages | BCC Research

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**Report description:**

Description

Research Review Scope
The advanced materials market is expanding rapidly, driven by the need for high-performance, lightweight, and sustainable materials across industries such as automotive, aerospace, electronics, healthcare, construction, and renewable energy. Advanced materials, which include high-performance polymers, composites, nanomaterials, and specialty textiles, enabling technological innovations that improve durability, energy efficiency, and product longevity. With industries shifting toward sustainable and multifunctional materials, research and development efforts are focused on creating materials that offer enhanced mechanical, thermal, and chemical properties while reducing environmental impact.
Among the various categories within the advanced materials market, silicones, smart polymers, and technical textiles play a critical role in shaping the future of material applications. Silicones are valued for their flexibility, thermal stability, chemical resistance, and biocompatibility. These properties make silicone essential in automotive, electronics, healthcare, construction, and consumer goods. With the rise of electric vehicles (EVs), 5G technology, and renewable energy solutions, demand for high-performance silicones is accelerating. Companies in the silicone market are investing in eco-friendly production methods, including bio-based silicones, improved recyclability, and reduced VOC emissions. Additionally, medical-grade silicones are witnessing strong growth due to their use in wearable medical devices, implants, and prosthetics.
Smart polymers are finding widespread applications in biomedical engineering, drug delivery systems, self-healing coatings, and flexible electronics. One of the most significant growth drivers for smart polymers is their role in biomedical applications. Innovations in controlled drug release, tissue engineering, and wound-healing materials are transforming the healthcare industry. Additionally, the development of biodegradable and recyclable smart polymers is supporting sustainability efforts in industries such as packaging, textiles, and electronics.
Technical textiles are designed for functionality rather than aesthetics, making them essential in industries such as aerospace, automotive, construction, healthcare, and defense. These textiles offer properties such as flame resistance, conductivity, antimicrobial effects, and water repellency, making them indispensable for protective clothing, automotive interiors, filtration

systems, and geotextiles for infrastructure projects. Textiles with self-cleaning, temperature-regulating, and energy-storing capabilities are becoming increasingly popular, particularly in sectors focused on sustainability and high-performance materials. Research Reviews from BCC Research provide market professionals with concise market coverage within a specific research category. This 2024 Research Review of Advanced Material provides a sampling of the type of quantitative market information, analysis, and guidance that BCC Research has been developing since its inception in 1971 to help its customers make informed business decisions. This Research Review includes highlights and excerpts from the following reports published by BCC Research in 2024:

- AVM207B Silicones: Global Markets
- CHM139B Smart Polymers
- CHM136C Technical Textiles: Global Markets

After you survey the excerpts in this Research Review, we encourage you to follow up on these topics by checking out the full market research reports associated with each topic. BCC Research looks forward to serving your market intelligence needs in the future.

Executive Summary

Summary:

- The global market for silicones is expected to grow from $17.4 billion in 2024 and is projected to reach $23.3 billion by the end of 2029, at a compound annual growth rate (CAGR) of 6.0% during the forecast period of 2024 to 2029.
- The global market for smart polymers is expected to increase from $23.8 billion in 2023 to $54.5 billion by the end of 2028, with a CAGR of 18.0% during the forecast period of 2023-2028.
- The global market for technical textiles is expected to grow from $213.8 billion in 2024 and is projected to reach $284.0 billion by the end of 2029, at a CAGR of 5.8% during the forecast period of 2024 to 2029.

The advanced materials market is expanding rapidly, driven by the need for high-performance, lightweight, and sustainable materials across industries such as automotive, aerospace, electronics, healthcare, construction, and renewable energy. Advanced materials, which include high-performance polymers, composites, nanomaterials, and specialty textiles, enabling technological innovations that improve durability, energy efficiency, and product longevity. With industries shifting toward sustainable and multifunctional materials, research and development efforts are focused on creating materials that offer enhanced mechanical, thermal, and chemical properties while reducing environmental impact.

Among the various categories within the advanced materials market, silicones, smart polymers, and technical textiles play a critical role in shaping the future of material applications. Silicones are valued for their flexibility, thermal stability, chemical resistance, and biocompatibility. These properties make silicone essential in automotive, electronics, healthcare, construction, and consumer goods. With the rise of electric vehicles (EVs), 5G technology, and renewable energy solutions, demand for highperformance silicones is accelerating. Companies in the silicone market are investing in eco-friendly production methods, including bio-based silicones, improved recyclability, and reduced VOC emissions.
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Smart polymers are finding widespread applications in biomedical engineering, drug delivery systems, self-healing coatings, and flexible electronics. One of the most significant growth drivers for smart polymers is their role in biomedical applications. Innovations in controlled drug release, tissue engineering, and wound-healing materials are transforming the healthcare industry. Additionally, the development of biodegradable and recyclable smart polymers is supporting sustainability efforts in industries such as packaging, textiles, and electronics.

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