

Smart Materials Market Analysis By Product (Piezoelectric, Shape Memory Alloys, Electrostrictive, Magnetostrictive, Electrochromic), By Application, By Region, And Segment Forecasts, 2014 - 2025

<https://marketpublishers.com/r/S8339FDE76EEN.html>

Date: November 2017

Pages: 95

Price: US\$ 5,950.00 (Single User License)

ID: S8339FDE76EEN

Abstracts

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The global smart materials market is anticipated to reach USD 98.2 billion by 2025, according to a report by Grand View Research, Inc. Extensive research & innovation activities have widened the industrial applications of smart materials. Augmented use of smart actuators & motors, sensors, and structural materials is anticipated to bolster the demand over the next few years.

Smart materials are advanced products, which can sense and respond to a broad range of stimuli, including electric and magnetic fields, temperature, pressure, mechanical stress, hydrostatic pressure, nuclear radiation, and pH change. Unique properties of these products allow them to revert to their original state after removal of the stimuli.

Piezoelectric, shape memory, electrostrictive, magnetostrictive, phase change, and electrochromic materials have gained wide industrial acceptance in the recent past. Furthermore, ferromagnetic shape memory alloys, electroactive polymers, conductive polymers, and carbon nanotube actuators are few of the emerging materials in the market, with strong application potential.

North America was the leading region in the global market in 2016, primarily owing to significant demand for smart actuators & motors in key industries such as automotive, consumer goods, and aerospace. Europe accounted for the second-largest share of the market in 2016, followed by Asia Pacific. Asia Pacific is anticipated to exhibit a

remarkable growth over the forecast period, owing to significant research activities supported by the government.

Further key findings from the report suggest:

The global smart materials market was valued at USD 32.77 billion in 2016 and is estimated to grow at a CAGR of 13.5% from 2017 to 2025, owing to increasing demand from key verticals such as aerospace, consumer electronics, and aerospace.

Considerable growth of piezoelectric devices in numerous end-user industries has boosted the product demand over the past few years, thereby enabling this product category to remain the dominant segment, with a share of over 50%.

The dominance of the piezoelectric product segment can be primarily attributed to the rising demand in applications such as hydrophones, sonar, speakers, buzzers, gas igniters, and sporting equipment.

Shape memory materials are predicted to experience the fastest growth over the forecast period, owing to rapid emergence of the product in medical sub-segments such as stents, dental braces, medical textiles, prosthetics, and surgical fixation devices.

Requirements pertaining to efficient vibration & noise control systems, ultrasonic motors, fuel injection systems, and standard industrial actuators have motivated the product demand in actuators & motors application segment.

The demand for the products in the structural material application segment is estimated to grow at the fastest rate during the forecast period, owing to emerging requirement of adaptive materials in structural health monitoring and green building materials.

Asia Pacific is estimated to grow at the fastest CAGR of 15.0% from 2017 to 2025. Collaboration between manufacturers and research organizations is likely to present new openings in the Chinese market, thereby also driving the overall Asia Pacific market.

Key players in the industry focus on research collaborations and product innovation to strengthen their positions in the industry.

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