

Smart Materials Market: Global Industry Trends, Share, Size, Growth, Opportunity and Forecast 2023-2028

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Abstracts

The global smart materials market size reached US\$ 52.6 Billion in 2022. Looking forward, IMARC Group expects the market to reach US\$ 97.3 Billion by 2028, exhibiting a growth rate (CAGR) of 10.6% during 2023-2028.

Smart materials are manufactured by modifying the mechanical and physical properties of standard materials under externally controllable and applied fields. These materials are presently available in multi-functional variants, ranging from carbon nanotubes and graphene to inorganic nanoparticles and conducting polymers. They are superior to conventional materials in terms of selectivity, directness, immediacy, transiency, and self-actuation. Additionally, as they can be activated by electrical stimuli to alter their magnetic and electric fields, stress, acoustic, temperature, nuclear radiation, and chemical behaviors, smart materials are gaining immense traction in various end use industries across the globe.

Smart Materials Market Trends:

The increasing use of chemical products in several industries, along with the rising awareness among employees about workplace safety and protection from hazardous conditions, represents one of the key factors catalyzing the adoption of smart materials in protective clothing. Apart from this, the escalating demand for effective, localized, and need-based systems in numerous biomedical applications, including cancer targeting, controlled drug delivery, tissue engineering, and biosensors, is stimulating the market growth. This can also be attributed to the rising incidences of chronic diseases and trauma injuries, coupled with the growing need for regenerative medicines and personalized treatments. Moreover, due to the emerging demand for energy-efficient building materials, smart materials are combined with conventional construction

materials to build structures that adapt to atmospheric conditions, such as wind, heat, or rain. Besides this, rising investments in research and development (R&D) activities to develop smart materials using biopolymers, such as bacterial cellulose, chitosan, gelatin, starch, polylactic acid, and polyglycolic acid, are creating a positive market outlook. Furthermore, as these materials are biocompatible, biodegradable, and capable of broad chemical modifications, their applications are anticipated to expand in formulating artificial muscles, biomimetic robots, and reconfigurable lens systems worldwide.

Key Market Segmentation:

IMARC Group provides an analysis of the key trends in each sub-segment of the global smart materials market report, along with forecasts at the global, regional and country level from 2023-2028. Our report has categorized the market based on product, application and end use industry.

Breakup by Product:

- Piezoelectric Materials
- Shape Memory Materials
- Electrostrictive Materials
- Magnetostrictive Materials
- Phase Change Materials
- Electrochromic Materials
- Others

Breakup by Application:

- Transducer
- Actuators and Motors
- Sensors
- Structural Materials
- Others

Breakup by End Use Industry:

- Automotive
- Consumer Electronics
- Aerospace and Defense
- Healthcare

Industrial
Others

Breakup by Region:

North America
United States
Canada
Asia-Pacific
China
Japan
India
South Korea
Australia
Indonesia
Others
Europe
Germany
France
United Kingdom
Italy
Spain
Russia
Others
Latin America
Brazil
Mexico
Others
Middle East and Africa

Competitive Landscape:

The competitive landscape of the industry has also been examined along with the profiles of the key players being APC International Ltd, Arkema S.A, Confluent Medical Technologies, CTS Corporation, Gentex Corporation, Johnson Matthey, Kyocera Corporation, Meggitt PLC, Murata Manufacturing Co. Ltd, Piezo Kinetics Inc. (The Crest Group Incorporated), SAGE Electrochromics Inc. (Saint-Gobain S.A.) and Solvay S.A.

Key Questions Answered in This Report

1. What was the size of the global smart materials market in 2022?
2. What is the expected growth rate of the global smart materials market during 2023-2028?
3. What has been the impact of COVID-19 on the global smart materials market?
4. What are the key factors driving the global smart materials market?
5. What is the breakup of the global smart materials market based on the application?
6. What is the breakup of the global smart materials market based on the end use industry?
7. What are the key regions in the global smart materials market?
8. Who are the key players/companies in the global smart materials market?

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