

# **Smart Materials Market Report by Product (Piezoelectric Materials, Shape Memory Materials, Electrostrictive Materials, Magnetostrictive Materials, Phase Change Materials, Electrochromic Materials, and Others), Application (Transducer, Actuators and Motors, Sensors, Structural Materials, and Others), End Use Industry (Automotive, Consumer Electronics, Aerospace and Defense, Healthcare, Industrial, and Others), and Region 2024-2032**

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## **Abstracts**

The global smart materials market size reached US\$ 58.1 Billion in 2023. Looking forward, IMARC Group expects the market to reach US\$ 132.0 Billion by 2032, exhibiting a growth rate (CAGR) of 9.3% during 2024-2032.

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 2024-2032. 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 2023?
2. What is the expected growth rate of the global smart materials market during 2024-2032?
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?

## Contents

### **1 PREFACE**

### **2 SCOPE AND METHODOLOGY**

- 2.1 Objectives of the Study
- 2.2 Stakeholders
- 2.3 Data Sources
  - 2.3.1 Primary Sources
  - 2.3.2 Secondary Sources
- 2.4 Market Estimation
  - 2.4.1 Bottom-Up Approach
  - 2.4.2 Top-Down Approach
- 2.5 Forecasting Methodology

### **3 EXECUTIVE SUMMARY**

### **4 INTRODUCTION**

- 4.1 Overview
- 4.2 Key Industry Trends

### **5 GLOBAL SMART MATERIALS MARKET**

- 5.1 Market Overview
- 5.2 Market Performance
- 5.3 Impact of COVID-19
- 5.4 Market Forecast

### **6 MARKET BREAKUP BY PRODUCT**

- 6.1 Piezoelectric Materials
  - 6.1.1 Market Trends
  - 6.1.2 Market Forecast
- 6.2 Shape Memory Materials
  - 6.2.1 Market Trends
  - 6.2.2 Market Forecast
- 6.3 Electrostrictive Materials

- 6.3.1 Market Trends
- 6.3.2 Market Forecast
- 6.4 Magnetostrictive Materials
  - 6.4.1 Market Trends
  - 6.4.2 Market Forecast
- 6.5 Phase Change Materials
  - 6.5.1 Market Trends
  - 6.5.2 Market Forecast
- 6.6 Electrochromic Materials
  - 6.6.1 Market Trends
  - 6.6.2 Market Forecast
- 6.7 Others
  - 6.7.1 Market Trends
  - 6.7.2 Market Forecast

## **7 MARKET BREAKUP BY APPLICATION**

- 7.1 Transducer
  - 7.1.1 Market Trends
  - 7.1.2 Market Forecast
- 7.2 Actuators and Motors
  - 7.2.1 Market Trends
  - 7.2.2 Market Forecast
- 7.3 Sensors
  - 7.3.1 Market Trends
  - 7.3.2 Market Forecast
- 7.4 Structural Materials
  - 7.4.1 Market Trends
  - 7.4.2 Market Forecast
- 7.5 Others
  - 7.5.1 Market Trends
  - 7.5.2 Market Forecast

## **8 MARKET BREAKUP BY END USE INDUSTRY**

- 8.1 Automotive
  - 8.1.1 Market Trends
  - 8.1.2 Market Forecast
- 8.2 Consumer Electronics

- 8.2.1 Market Trends
- 8.2.2 Market Forecast
- 8.3 Aerospace and Defense
  - 8.3.1 Market Trends
  - 8.3.2 Market Forecast
- 8.4 Healthcare
  - 8.4.1 Market Trends
  - 8.4.2 Market Forecast
- 8.5 Industrial
  - 8.5.1 Market Trends
  - 8.5.2 Market Forecast
- 8.6 Others
  - 8.6.1 Market Trends
  - 8.6.2 Market Forecast

## **9 MARKET BREAKUP BY REGION**

- 9.1 North America
  - 9.1.1 United States
    - 9.1.1.1 Market Trends
    - 9.1.1.2 Market Forecast
  - 9.1.2 Canada
    - 9.1.2.1 Market Trends
    - 9.1.2.2 Market Forecast
- 9.2 Asia-Pacific
  - 9.2.1 China
    - 9.2.1.1 Market Trends
    - 9.2.1.2 Market Forecast
  - 9.2.2 Japan
    - 9.2.2.1 Market Trends
    - 9.2.2.2 Market Forecast
  - 9.2.3 India
    - 9.2.3.1 Market Trends
    - 9.2.3.2 Market Forecast
  - 9.2.4 South Korea
    - 9.2.4.1 Market Trends
    - 9.2.4.2 Market Forecast
  - 9.2.5 Australia
    - 9.2.5.1 Market Trends

- 9.2.5.2 Market Forecast
- 9.2.6 Indonesia
  - 9.2.6.1 Market Trends
  - 9.2.6.2 Market Forecast
- 9.2.7 Others
  - 9.2.7.1 Market Trends
  - 9.2.7.2 Market Forecast
- 9.3 Europe
  - 9.3.1 Germany
    - 9.3.1.1 Market Trends
    - 9.3.1.2 Market Forecast
  - 9.3.2 France
    - 9.3.2.1 Market Trends
    - 9.3.2.2 Market Forecast
  - 9.3.3 United Kingdom
    - 9.3.3.1 Market Trends
    - 9.3.3.2 Market Forecast
  - 9.3.4 Italy
    - 9.3.4.1 Market Trends
    - 9.3.4.2 Market Forecast
  - 9.3.5 Spain
    - 9.3.5.1 Market Trends
    - 9.3.5.2 Market Forecast
  - 9.3.6 Russia
    - 9.3.6.1 Market Trends
    - 9.3.6.2 Market Forecast
  - 9.3.7 Others
    - 9.3.7.1 Market Trends
    - 9.3.7.2 Market Forecast
- 9.4 Latin America
  - 9.4.1 Brazil
    - 9.4.1.1 Market Trends
    - 9.4.1.2 Market Forecast
  - 9.4.2 Mexico
    - 9.4.2.1 Market Trends
    - 9.4.2.2 Market Forecast
  - 9.4.3 Others
    - 9.4.3.1 Market Trends
    - 9.4.3.2 Market Forecast



## 9.5 Middle East and Africa

### 9.5.1 Market Trends

### 9.5.2 Market Breakup by Country

### 9.5.3 Market Forecast

## **10 SWOT ANALYSIS**

### 10.1 Overview

### 10.2 Strengths

### 10.3 Weaknesses

### 10.4 Opportunities

### 10.5 Threats

## **11 VALUE CHAIN ANALYSIS**

## **12 PORTERS FIVE FORCES ANALYSIS**

### 12.1 Overview

### 12.2 Bargaining Power of Buyers

### 12.3 Bargaining Power of Suppliers

### 12.4 Degree of Competition

### 12.5 Threat of New Entrants

### 12.6 Threat of Substitutes

## **13 PRICE ANALYSIS**

## **14 COMPETITIVE LANDSCAPE**

### 14.1 Market Structure

### 14.2 Key Players

### 14.3 Profiles of Key Players

#### 14.3.1 APC International Ltd

##### 14.3.1.1 Company Overview

##### 14.3.1.2 Product Portfolio

#### 14.3.2 Arkema S.A

##### 14.3.2.1 Company Overview

##### 14.3.2.2 Product Portfolio

##### 14.3.2.3 Financials

##### 14.3.2.4 SWOT Analysis

- 14.3.3 Confluent Medical Technologies
  - 14.3.3.1 Company Overview
  - 14.3.3.2 Product Portfolio
- 14.3.4 CTS Corporation
  - 14.3.4.1 Company Overview
  - 14.3.4.2 Product Portfolio
  - 14.3.4.3 Financials
- 14.3.5 Gentex Corporation
  - 14.3.5.1 Company Overview
  - 14.3.5.2 Product Portfolio
  - 14.3.5.3 Financials
- 14.3.6 Johnson Matthey
  - 14.3.6.1 Company Overview
  - 14.3.6.2 Product Portfolio
  - 14.3.6.3 Financials
  - 14.3.6.4 SWOT Analysis
- 14.3.7 Kyocera Corporation
  - 14.3.7.1 Company Overview
  - 14.3.7.2 Product Portfolio
  - 14.3.7.3 Financials
  - 14.3.7.4 SWOT Analysis
- 14.3.8 Meggitt PLC
  - 14.3.8.1 Company Overview
  - 14.3.8.2 Product Portfolio
  - 14.3.8.3 Financials
  - 14.3.8.4 SWOT Analysis
- 14.3.9 Murata Manufacturing Co. Ltd
  - 14.3.9.1 Company Overview
  - 14.3.9.2 Product Portfolio
  - 14.3.9.3 Financials
  - 14.3.9.4 SWOT Analysis
- 14.3.10 Piezo Kinetics Inc. (The Crest Group Incorporated)
  - 14.3.10.1 Company Overview
  - 14.3.10.2 Product Portfolio
- 14.3.11 SAGE Electrochromics Inc. (Saint-Gobain S.A.)
  - 14.3.11.1 Company Overview
  - 14.3.11.2 Product Portfolio
- 14.3.12 Solvay S.A.
  - 14.3.12.1 Company Overview

14.3.12.2 Product Portfolio

14.3.12.3 Financials

14.3.12.4 SWOT Analysis

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