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Smart Materials – A Global Market Overview

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Abstracts

Report Synopsis

Smart Materials constitute a class of advanced materials capable of sensing and responding to a wide variety of stimuli that can include electric and magnetic fields, temperature, pressure, mechanical stress, hydrostatic pressure, nuclear radiation and pH change. The inherently unique characteristics of these materials make it possible for them to revert back to their original state after the external stimulus is removed. This next generation of intelligent materials displays adaptive capabilities and alters its physical properties such as shape, stiffness and viscosity in a specified manner. Smart Materials have multiple functionalities, such as self-adaptability, self-sensing, self-healing and memory, which allow them to be used in a variety of applications.

As per the findings by the analysts at Industry Experts, Inc., Phase Change Materials (PCMs) constitute the fastest growing material type with a robust 20% CAGR in the global market for Smart Materials. The increasing application of structural products in applications, such as building resources, electronics cooling, energy storage, shipping and packaging would further propel demand for these materials. Piezoelectric Materials corner the largest share of the global Smart Materials market, accounting for a forecast 66% share in 2018.

Research Findings & Coverage

Smart Materials market is analyzed in this report with respect to all major material types and their key sub-types

The study extensively studies each material type and the sub-type in all major global regions and prominent geographies in these regions

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Thermal Properties of Bio-based PCMs Enhanced with Exfoliated Graphite Nanoplatelets

Energy Harvesting Applications Get a Boost with Biodegradable Piezoelectric Polymer

Latest Advances in High Temperature Shape Memory Alloys

Key business trends focusing on product innovations/developments, M&As, JVs and other recent industry developments

Major companies profiled – 43

The industry guide includes the contact details for 143 companies

Product Outline

The report analyzes the market for the key material types and sub-types of Smart Materials including:

Electrostrictive Materials

Lead Magnesium Niobate-Lead Titanate (PMN-PT)

Polymers

Magnetostrictive Materials

Ferrites

Rare Earth Materials

Piezoelectric Materials

Piezoceramics

Piezocomposites

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- Piezocrystals
- Piezopolymers

- Phase Change Materials
  - Bio-Based
  - Inorganic
  - Organic

- Shape Memory Alloys
  - Copper-Based
  - Iron-Based
  - Nickel-Titanium

- Other Smart Materials (include wet electroactive polymers, electrorheological & magnetorheological fluids, electroluminescent & photoluminescent materials and electrochromic materials)

Analysis Period, Units and Growth Rates

The report reviews, analyzes and projects the global Smart Materials market for the period 2014-2023 in terms of market value in US$ and the compound annual growth rates (CAGRs) projected from 2017 through 2023

Geographic Coverage

- North America (The United States, Canada and Mexico)
- Europe (France, Germany, Italy, Russia, Spain, The United Kingdom and Rest of Europe)

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Asia-Pacific (China, India, Japan, South Korea and Rest of Asia-Pacific)

South America (Argentina, Brazil and Rest of South America)

Rest of World

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2.2 Waste Sawdust-Based Composite Phase Change Materials Show Superior Thermal Conductivity
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2.4 Latest Advances in High Temperature Shape Memory Alloys
2.5 Thermal Properties of Bio-based PCMs Enhanced with Exfoliated Graphite Nanoplatelets

3. KEY GLOBAL PLAYERS

APC International Ltd. (The United States)
Arkema SA (France)
Cedrat Technologies SA (France)
Ceramtec GmbH (Germany)
Channel Technologies Group, LLC (The United States)
Climator Sweden AB (Sweden)
Croda International PLC (The United Kingdom)
Dynalloy, Inc. (The United States)
Fort Wayne Metals, Inc. (The United States)
G.RAU GmbH & Co., KG. (Germany)
Harris Corporation (The United States)
Honeywell Electronic Materials, Inc. (The United States)
Johnson Matthey Piezo Products GmbH (Germany)
Kyocera Corporation (Japan)
Metglas, Inc. (The United States)
Mid? Technology Corporation (The United States)
Morgan Advanced Materials PLC (The United Kingdom)
Noliac A/S (Denmark)
Peier Tech (China)
Phase Change Energy Solutions, Inc. (The United States)
Physik Instrumente (PI) GmbH & Co., KG. (Germany)
Piezo Kinetics, Inc. (The United States)
Qortek, Inc. (The United States)
Rubitherm Technologies GmbH (Germany)
SAES Getters SpA (Italy)

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Smart Material Corporation (The United States)
Solvay SA (Belgium)
Ultimate Niti Technologies, Inc. (The United States)

4. KEY BUSINESS & PRODUCT TRENDS

Fine Tubes Ltd and International Titanium Association Conduct Presentation at Titanium Europe Conference 2018 in Seville, Spain
KYOCERA Corporation Launches New Ultra-Durable Coating Technology and Base Material
Fine Tubes Ltd Exhibits Titanium Based Tubes for Oil and Gas Extraction
KYOCERA Corporation Showcases Fine Ceramic Innovations at Hannover Messe 2018, Germany Trade Fair
AVX Corporation Launches New T4Z Medical Series HRC4000 Tantalum Capacitors for Non-Critical Medical Devices
SASOL Chemicals Announce Alumina Production Capacity
AMETEK to Exhibit at Titanium Asia 2018
Allegheny Technologies Incorporated Enters into Agreement with General Dynamics (GD) Land Systems
Fort Wayne Metals Buys G&S Titanium
ATI to Supply Nickel-Based Alloy Product for a Large Oil Pipeline Repair Project
LEMA™ Alumina-Based Materials from Morgan Advanced Materials are Ideal for Investment Casting of Turbine Engine Blades
AMETEK Showcases Specialty Metal Tube, Strip and Powder for Critical Medical Applications at Medical Design and Manufacturing Minneapolis Exhibition 2017
Allegheny Technologies Incorporated and Tsingshan Group Join Forces to Form Joint Venture Company
Croda International Plc Opens Centre of Innovation for Formulation Science at the University of Liverpool’s new Materials Innovation Factory (MIF)
Advanced Materials Development, LLC Expands in Columbia City
Morgan Advanced Materials Establishes Metals and Joining Center of Excellence in Hayward, California, USA
Allegheny Technologies Incorporated and GE Aviation Announce Titanium Joint Venture plant
Electric Vehicle Market Grows with the industry-Wide Adoption of Alumina and Silicon Carbide Components
Morgan Advanced Materials Develops New Materials P-57 and P-59 for Use in Aerospace Components
Fine Tubes Ltd and Superior Tube Presents Titanium, Stainless Steel and Nickel Alloy

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5. GLOBAL MARKET OVERVIEW

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LIST OF CHARTS & GRAPHS

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PART B: REGIONAL MARKET PERSPECTIVE

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