Self-Healing Materials Market Estimated To Reach at USD 8.23 billion in 2026 : Polaris Market Research

Global self-healing materials market is expected to grow from USD 0.128 billion in 2017 to USD 8.23 billion by 2026, at a CAGR of 59% during the forecast period

BROOKLYN, NY, UNITED STATES, February 19, 2018 /EINPresswire.com/ -- According to a study published by Polaris Market Research, global Self-Healing Materials indicates that the market generated USD 0.128 billion in 2017 and is anticipated to grow at a CAGR of 59% during the forecast period.

Self-healing materials are those with the capability to considerably recover the load transferring capacity after any damage. These newly invented materials with their excellent inherent characteristics have been experiencing significant demand from a wide range of industries, and with its increasing commercial viability, demand of self-healing components are expected to even grow further. These products contribute enormously to the safety and durability of polymeric components. Apart from these, self-healing materials restore the material's performance by recovering of properties such as tensile strength, fracture toughness etc. These eventually led to cutting down of maintenance and offers opportunities for broadening the application space.

> "The mainly used self-healing technologies currently include hollow glass fiber repair mechanism, microencapsulated healing agent, micro vascular network, hollow fiber approach, etc."
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> *Polaris Market Research*

The mainly used self-healing technologies currently include hollow glass fiber repair mechanism, microencapsulated healing agent, micro vascular network, hollow fiber approach, inclusion of thermoplastic additives. Microencapsulation has been the most used type in the recent time. In the automotive industry Nissan Motors Co. Ltd. made the first self-healing clear coating for car surfaces in the world. This hydrophobic paint repairs the scratches on coated car surfaces and remains effective for three years.

In the building & construction industry polyurethane or epoxy resins have been the most used self-healing component. These can be used to act as healing agents in concretes. As the concrete breaks, the polyurethane is released immediately from the break of the capsule. This also has an added advantage of enhancing structural stability.

Microcapsule-based systems sequester is a healing agent, which is used in capsules. As the

microcapsules cracks, the healing agent is drawn to the cracked area by the action of the capillary. With the occurrence of a subsequent chemical reaction the cracks get repaired automatically.

However, innovation of yet another material named micro vascular healing overcomes the limitation of the capsule-based healing system. In these materials, there is a fixed supply of healing agents and this restricts the number of initiation of cracks.

Self-healing battery electrodes are also among the recent development in this field. Microcapsules which consist of conductive filler are embedded within the electrodes. Under the influence of volumetric contraction and expansion microcapsules release their contents during which battery cycling as soon as transportation of lithium starts in an out of the electrode.

The report provides an extensive qualitative and quantitative analysis of the market trends and growth prospects of the Global Self-Healing Materials Market, 2017-2026. This report comprises a detailed geographic distribution of the market across North America, Europe, APAC and South America, and MEA. North America is further segmented into U.S., Canada. Europe is divided into Germany, UK, Italy, and Rest of Europe. Asia-Pacific is bifurcated into China, India, Japan, and Rest of Asia-Pacific.

Competitive Landscape and Key Vendors

The self-healing materials industry is in a nascent stage and commercialization of these products to a full potential is expected to be by 2020. Costly product prices compared to the traditional counterparts is a major factor of concern for the industry participants. North America is expected to be the leading market with a share of around 40% of the global market. However, Asia Pacific is anticipated to grow significantly and is a potential market owing to the increasing industrialization in the region.

Major industry participants manufacturing these products in the global market space include Dow Chemicals, AkzoNobel, Huntsman Advanced Materials, and Autonomic Materials, Slips Technologies, Inc., Sensor Coating Systems Ltd., Acciona S.A., Applied Thin Films, Inc. (ATFI), Akzo Nobel N.V., Avecom N.V., Autonomic Materials Inc., BASF SE, Covestro AG (Formerly Bayer Material Science), Critical Materials S.A. and Devan Chemicals.

Key Segments

Segment – 1. Material Types

1.1 Coatings
1.2 Concrete
1.3 Asphalt
1.4 Polymers
1.5 Ceramic
1.6 Others

Segment – 2. Technology

2.1 Microencapsulation
2.2 Reversible Polymers
2.3 Biological Material Systems
2.4 Others

Segment – 3. End-User

3.1 Automotive
3.2 Aerospace
3.3 Electronics
3.4 Building & Construction
3.5 Others

Segment – 4. Region

4.1 North America
4.1.1 U.S.
4..1.2 Canada

4.2 Europe
4.2.1 Germany
4.2.2 UK
4.2.3 France

4.3 Asia-Pacific
4.3.1 China
4.3.2 India
4.3.3 Japan
4.3.4 Rest of Asia-Pacific

4.4 South America
4.4.1 Brazil
4.4.2 Mexico

4.5 Middle East and Africa

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