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Self-Healing Materials Market by Form (Extrinsic, Intrinsic), Material Type (Concrete, Coatings, Polymers, Asphalt, Ceramic, Metals), End-Use Industry (Building & Construction, Transportation, Mobile Devices), and Region - Global Forecast to 2021

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Abstracts

“The self-healing materials market is projected to grow at a CAGR of 95.0% during the forecast period”

The global self-healing materials market is projected to reach USD 2,447.7 million by 2021, at a CAGR of 95.0% from 2016 to 2021. The growth of the market can be attributed to the properties of self-healing materials that yield long-term financial benefits compared to traditional materials. Building & construction is one of the major end-use industries for self-healing materials in emerging as well as developed economies. Self-healing materials are largely used in concrete. Rising awareness regarding the benefits of self-healing materials is also expected to fuel the demand for these materials. Self-healing materials are currently very expensive as compared to conventional materials. This may restrain the growth of the market in near future.

“Building & construction is estimated to be the largest segment of the self-healing materials market”

The widest adoption of self-healing materials has been in the building & construction end-use industry, where high material performances are increasingly required and where the use of self-healing material has resulted in several benefits. Self-healing materials are used for wear protection of structural components. The use of self-healing materials helps increase the lifetime of structures, resulting in reduced material repair costs.

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“The extrinsic segment is expected to witness higher growth during the forecast period”

The extrinsic self-healing materials segment is expected to witness a higher growth than intrinsic systems, as unlike intrinsic systems, extrinsic systems can achieve healing efficiencies over 100% even when the damage is large.

“The self-healing materials market in RoW market estimated to witness highest growth during the forecast period”

In South Africa, Saudi Arabia, and to a lesser extent, Brazil, rising awareness about the benefits of self-healing materials has led to the increased adoption across various end-use industries.

In the process of determining and verifying the market size for the several segments and subsegments gathered through secondary research, extensive primary interviews were conducted as follows:

By Company Type: Tier 1 (45%), Tier 2 (35%), and Tier 3 (20%)

By Designation: C-level (35%), Director Level (25%), and Others (40%)

By Region: Europe (55%), North America (32%), Asia-Pacific (9%), and RoW (4%)

The key players profiled in the report include Acciona S.A. (Spain), AkzoNobel N.V. (Netherlands), Applied Thin Films, Inc. (U.S.), Arkema SA (France), Autonomic Materials Inc. (U.S.), Avecom N.V. (Belgium), BASF SE (Germany), Covestro AG (Germany), Critical Materials S.A. (Portugal), Devan Chemicals (Portugal), E.I. Du Pont De Nemours and Company (U.S.), Evonik Industries (Germany), Sensor Coating Systems Ltd. (U.K.), and Slips Technologies, Inc. (U.S.).

Study Coverage

This report covers the self-healing materials market, in terms of value, and forecasts the market size till 2021. The report includes the market segmentation based on form, material type, end-use industry, and region. It also provides company profiles and competitive strategies adopted by the key players in the self-healing materials market.

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Key benefits of buying the report:

This research report is focused on various levels of analysis—industry trends, market share analysis of key players, supply chain analysis, and company profiles, which together comprise and discuss the overall views on the competitive landscape; emerging and high-growth segments of the self-healing materials market; high-growth regions; and market drivers, restraints, and opportunities.

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*Details on company at a glance, recent financials, products & services, strategies & insights, & recent developments might not be captured in case of unlisted companies.

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About

The report "Self-Healing Materials Market by Form (Extrinsic, Intrinsic), Material Type (Concrete, Coatings, Polymers, Asphalt, Ceramic, Metals), End-Use Industry (Building & Construction, Transportation, Mobile Devices), and Region - Global Forecast to 2021", The self-healing materials market was valued at USD 49.8 Million in 2015 and is projected to reach USD 2,447.7 Million by 2021, at a CAGR of 95.0% between 2016 and 2021.

Major companies profiled in this report include:

Acciona S.A. (Spain), AkzoNobel N.V. (Netherlands), Applied Thin Films, Inc. (U.S.), Arkema SA (France), Autonomic Materials Inc. (U.S.), Avecom N.V. (Belgium), BASF SE (Germany), Covestro AG (Germany), Critical Materials S.A. (Portugal), Devan Chemicals (Portugal), E.I. Du Pont De Nemours and Company (U.S.), Evonik Industries (Germany), Sensor Coating Systems Ltd. (U.K.), and Slips Technologies, Inc. (U.S.). among others.

Research Coverage:

This report covers the self-healing materials market, in terms of value, and forecasts the market size till 2021. The report includes the market segmentation based on form, material type, end-use industry, and region. It also provides company profiles and competitive strategies adopted by the key players in the self-healing materials market.

The growth of the market can be attributed to the properties of self-healing materials that yield long-term financial benefits compared to traditional materials. The application of self-healing materials has increased in building & construction and transportation industries in Europe and North America, owing to the growing awareness about the benefits of self-healing materials in these regions.

Extrinsic segment estimated to be a larger form type segment of the market in terms of value

The capsule-based subsegment is estimated to be a larger segment of the extrinsic self-healing materials market, in terms of value. This method relies on the release of an encapsulated healing agent into the damage zone, and is generally a once-off process as the functionality of the encapsulated healing agent cannot be restored. The scaling

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up from pilot scale to industrial scale production of self-healing materials in Europe is expected to lead to increased demand for self-healing materials, especially in the building & construction and transportation industries. Vascular systems are relatively less explored and are therefore costlier than the capsule-based systems.

The asphalt segment, based on material type, is expected to register the highest growth during the forecast period

Three ways are being explored to make aged asphalt ‘softer’ and prevent or close as many microcracks as possible. In the first approach, oil-containing capsules made of porous sand are embedded in a binder. When a microcrack in bitumen develops and enters a capsule, the oil flows into the crack and partly fills the crack. The asphalt is rejuvenated by the diffusion of bitumen and oil, decreasing the stiffness of the bituminous binder. In the second approach, conductive fibers like steel wool are incorporated into bitumen. Bitumen melts by the heat generated by electric currents in these fibers, induced by an alternating magnetic field by a coil placed above the asphalt, resulting in crack closure and restoring the material properties. The principle of the induction heating approach has already been proven. To increase the conductivity, electrically-conducting fibers appear to be much more efficient than non-fibrous fillers.

Self-healing materials market in Rest of the World (RoW) is estimated to witness growth during the forecast period

Europe is the largest market for self-healing materials, in terms of value, followed by North America and Asia-Pacific. The U.S., Germany, China and Japan are the largest consumers of self-healing materials. The demand for self-healing materials in applications, such as concrete and coatings is high in RoW. Rising awareness about the benefits of self-healing materials has resulted in this high demand for self-healing materials in RoW countries, such as South Africa, Saudi Arabia, Brazil and Argentina.

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