Aerogels

Description: This report provides an updated review of the important advances in aerogel technology and fabrication processes, and supplies a detailed overview of the current market and an analysis of prospects for future growth. Forecast provided through 2020.

This report provides:
- Analyses of global market trends, with data from 2014, estimates for 2015, and projections of compound annual growth rates (CAGRs) through 2020.
- Discussion of technological issues, including the latest process developments.
- Examination of the industry on a worldwide basis from the standpoints of both manufacturing and consumption, as well as commercial and public research activities in major regions of the world.
- Delineation of current and emerging applications of aerogels identified and divided by sector (i.e., thermal and acoustic insulation, electronics, chemical and environmental, medical/biological/pharmaceutical/personal care, sensors and instrumentation, energy, aerospace and space exploration, consumer, and defense).
- A breakdown of the global industry structure, including a complete list of suppliers with descriptions of their products and company profiles.
- A patent analysis by region, country, assignee, category, application, and material type.

Use this report to:
- Gain insight into aerogel technology, including materials and fabrication processes, and identify current and emerging applications for aerogels.
- Assess global market data for aerogel and aerogel-based products by different market segments, materials, properties, applications and region.
- Evaluate global market trends for aerogel based products, and their latest technological developments.
- Identify U.S. patents with a summary of patents related to aerogel materials, formulations, fabrication processes and applications.

Scope of the Report:

This report provides an updated review of aerogel technology, including materials and fabrication processes, and identifies current and emerging applications for aerogels. It looks at the current market status for aerogels, defines trends, and presents growth forecasts for the next five years. The aerogel market is based on the following segments: material, shape, application and region. In addition, technological issues, including key events and the latest process developments, are discussed. More specifically, the market analysis conducted for this report is divided into five sections.

In the first section, an introduction to the topic and a historical review of aerogel technology are provided, including an outline of recent events. In this section, current and emerging applications of aerogels are also identified and divided by sector (i.e., thermal and acoustic insulation, electronics and optoelectronics, chemical/mechanical/environmental, life science and personal care, sensors and instrumentation, energy, aerospace and space exploration, consumer products, defense and others).

The second section provides a technological review of aerogels. This section offers a revised and detailed description of aerogel materials, properties, shapes and sizes, aerogel fabrication methods and recent process upgrades. This section concludes with an analysis of the most important technological developments since 2013, including examples of significant patents recently issued or applied for, as well as highlighting the most active research organizations operating in this field.

The third section entails a global market analysis of aerogels. Global revenues (sales data in millions of dollars) are presented for each segment (shape, material, application and region) with actual data for the years 2013 and 2014, and estimated revenues for 2015. The analysis of current revenues for aerogel-based products is followed by a detailed presentation of market growth trends based on industry growth, technological trends, unit price trends and regional trends. The third section concludes by providing projected aerogel revenues within each segment, together with forecast compound annual growth rates (CAGRs) for 2015 through 2020.
In the fourth section of the report, which covers global industry structure, the report offers a list of the leading suppliers of aerogels, together with a description of their products. The analysis includes a description of the geographical distribution of these firms and an evaluation of other key industry players. Detailed company profiles of the top players are also provided.

The fifth and final section includes an extensive U.S. patent analysis, with a summary of patents related to aerogel materials, formulations, fabrication processes and applications. The patents examined in this study were issued from 2013 to 2015. Patent analysis is performed by region, country, assignee, patent category, application and material type.

Reasons for doing the study:

Aerogels are ultra-light materials with a nanoporous structure. Although the first aerogel was produced in the early 1900s and commercialization started in the 1940s, the aerogel market started to take off during the 1980s, with the introduction of processes and products that decreased the hazards and costs related to aerogel manufacturing. Today, aerogels are produced in various shapes (powders, microspheres, granules, beads, monoliths, sheets, blankets, rolls and coatings) to satisfy the requirements of different industrial sectors, such as thermal and acoustic insulation, electronics, chemical and environmental, medical, biological, pharmaceutical and personal care, among others.

At the time of the last report (early 2013), the global market for aerogels was valued at $137.5 million for all of 2012 and growing at a healthy rate. Since then, sales of aerogels have increased to reach between 3% and 4% of the global market for nanoporous materials, which are estimated to be valued at over $6 billion in 2015, and they currently represent the fastest-growing segment within this market.

The principal reason for this report is to present a current assessment of the aerogel industry from both a technological and market point of view, and to outline future trends and key developments. There is also a need to evaluate the current status and future trends of this market from a global standpoint. As the use of aerogel-based products expands and new fields of application emerge, information on suppliers and developers of these products and their regional distribution becomes more valuable.

An equally important reason for undertaking this report is to provide technical insights into aerogel manufacturing by:

- Providing a review of aerogel types, their applications and fabrication technologies.
- Identifying current technological trends.
- Providing an overview of the main global R&D activities related to aerogels, resulting in the issuance of patents.
- Illustrating the latest technological developments.

This information can assist companies in identifying opportunities for process and productivity improvements and new product development, resulting in a positive impact on future market growth.

Intended Audience:

This study will be of primary interest to all organizations that:

- Manufacture, sell and distribute aerogels or aerogel-based products.
- Produce raw materials for aerogel fabrication.
- Manufacture process equipment utilized by aerogel producers.
- Fabricate and supply products for thermal insulation, energy management and architectural projects.
- Provide technical and/or marketing services in thermal and acoustic insulation, energy management and architecture.
- Provide exterior and interior design applications for the automobile industry.
- Provide products to the life science and cosmetic industries.
- Are planning to enter the aerogel industry as manufacturers of aerogels, as manufacturers of chemicals and/or fabrication equipment used in aerogel production, or as end users.

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