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Graphene: The Global Market to 2020

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Abstracts

Future Markets, Inc. along with Nanotech Magazine has published the most comprehensive analysis thus far on the burgeoning Graphene market. Presented in magazine format this fully updated to August 2013 report provides and easily readable and succinct guide to this wonder material. Driven by demand from markets where advanced materials are required, graphene promises to outstrip all current nanomaterials, especially in electronics and energy storage. Other markets graphene is impacting include aerospace, automotive, coatings and paints, communications, sensors, solar, oil, and lubricants.

The exceptional electron and thermal transport, mechanical properties, barrier properties and high specific surface area of graphene and combinations thereof make it a potentially disruptive technology all these industries. The European Union is funding a 10 year 1,000 million euro coordination action on graphene. South Korea is spending $350 million plus on commercialization initiatives and the United Kingdom is investing over £70 million on various initiatives. Applications are coming onto the market for polymer composites and EMI shielding coatings. Graphene-based conducting inks are also finding their way into smart cards and radio-frequency identification tags. China is expecting to bring graphene products to the market in 2014 in consumer electronics. Many of the current and potential applications of carbon nanotubes may be taken by graphene, as it displays enhanced properties but with greater ease of production and handling. In this regard, carbon nanotubes may be viewed as a stalking horse for commercial applications of graphene. However, in an interesting development, using carbon nanotubes and graphene in combination shows great promise, allowing for greater consistency and higher concentrations of these materials in the end products.

Most graphene producers currently produce graphene nanoplatelets and graphene oxide. Within the last year couple of years graphene producers have increased production capabilities considerably. XG Sciences, Angstron Materials and Vorbeck

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have increased, or are planning to increase, their production capacities and other large materials companies are getting in on the act. Producers are generally small, start-up companies who have witnessed an explosion in demand for their materials from a variety of industries. Companies such as Phillips, Nokia, IBM and Samsung are pursuing applications for graphene in electronics and optics. Near-term demand is for composites and coatings for application in the automotive, plastics, coatings, construction, metals, batteries, aerospace and energy markets.

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MARKET: COATINGS

MARKET: COMPOSITES

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