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Richard.Jun.Li@innovaresearchinc.com**Innova Research Identifies the Top Seven Graphene Trends for 2017**

SHANGHAI, CHINA – January 6, 2017 – Innova Research recently released the top seven emerging trends in the world of graphene for 2017 and beyond. These trends cover the technological evolution, the standards and regulations, the industry value chain integration, and the development of downstream graphene applications.

Prices of graphene materials will continue to fall

The prices of graphene materials, including nanoplates and films, will continue to drop in 2017 except perhaps the large-area graphene films, due to the low yield rate and therefore the limited supply of large area graphene films.

Customized graphene products will rise

The demands on customized graphene products will grow rapidly in the next few years. Graphene suppliers are working closely with downstream developers to develop specific graphene applications, which will lead to a rapid growth in the market demands for customized graphene products.

Graphene suppliers will differentiate themselves by focusing on specific applications

Today, most graphene makers supply their products to any application markets they can play. However, specialization will take place since different graphene applications demand different product specifications, and consequently the unique technology know-hows, R&D capabilities, and even different graphene production lines. As a result, when a number of graphene application markets start to surge, the winning graphene players will be the ones who can successfully identify the emerging graphene applications and differentiate themselves by focusing on one or a few of these applications.

Graphene industry standards will take shape

As of today, there is no national industry standard for graphene in China. In 2017, the Standardization Administration of China (SAC) will release the first Chinese national graphene industry standard, which will be formed based on a few regional graphene industry standards set up by regional industry associations and local governments. Innova Research expects similar activities in North America and Europe, which in combination forming the foundational industry standards for the global graphene industry in next few years.

Graphene-enabled anti-corrosive coating will lead the growth of graphene composites

Graphene-enabled anti-corrosive coating has already achieved scaled shipments. With the prices of graphene decrease further, graphene-enabled coating is expected to extend its reach from the current

high-end coating market to medium-end coating market in the next few years. Moreover, the use of graphene-enabled functional textiles in sports and other consumer products is emerging, while graphene-enabled building materials and graphene-enabled structural materials for automotive are still at the early stage.

Graphene will make significant progresses in energy storage applications, however, not in electrodes.

The use of graphene in various energy storage applications, such as graphene as heat dissipation materials in lithium-ion batteries, has already seen its breakthrough. In addition, graphene-assistant supercapacitors and solar cells are expected to be launched in the next few years. On the other hand, graphene batteries, defined as batteries adapting graphene or graphene composites as electrode materials, are not likely to scale in the next five years.

The development of graphene-integrated CPUs and other logic devices will draw further attentions from electronics and computer giants

The use of graphene in electronics applications is getting solid progresses. Graphene-enabled conductive paste/ink and graphene-based RFID tags have made their way into applications. In the next few years, graphene-enabled EMI shielding and ESD protection components are likely to gain solid progresses towards mass adaption. More interestingly, the use of graphene in core electronics components, such as CPUs and other IC chips, will continue to draw great attentions from various computer and electronics giants, and more R&D efforts and other resources are expected to be spent on developing the graphene-integrated electronics in the next few years.

Dr. Nancy Wu, research director of Innova Research commented: “The graphene market still faces a lot of uncertainty and the key is to develop graphene applications. While the prices of graphene fall, the adoption of graphene in electronics, composite materials, and energy storage applications will accelerate, and the first successful graphene applications that achieve mass shipments will emerge in the next few years. Graphene suppliers who can successfully identify the emerging applications and focusing on those successful applications have good chances to win large shares. The launch of the graphene industry standards will also have positive influence on the development of the graphene market in the next few years. ”

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