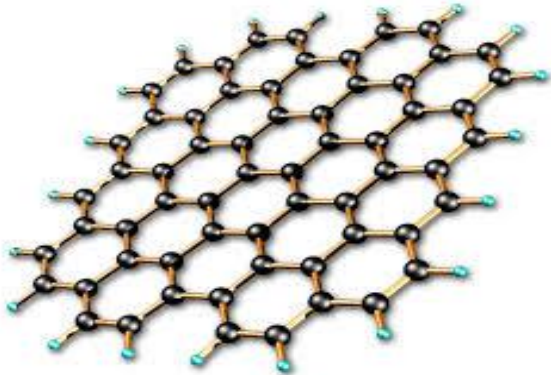
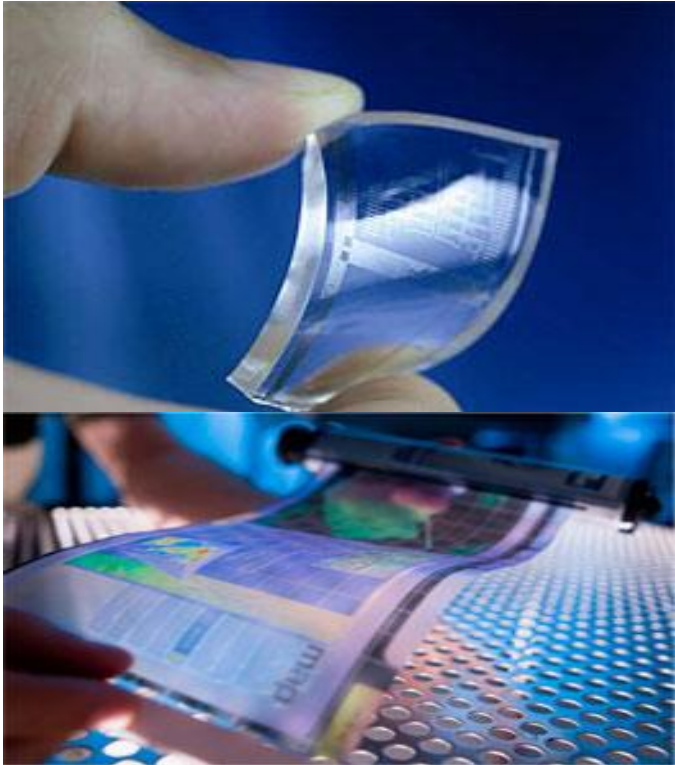


# Global Graphene Market: Trends and Opportunities (2014-2018)

April 2014



Daedal Research

## **Scope of the report**

The report titled "Global Graphene Market: Trends and Opportunities (2014-2018)" provides an in-depth analysis of global graphene and its end-use in different sectors. It also accesses the key opportunities and underlying trends in the market and outlines the factors that are and will be driving the growth of the industry in the forecasted period (2013-18). Further, key players of the industry like Applied Graphene materials, Graphene Nanochem, Vorbeck Material, XG science and Angstrom Material are profiled.

## **Application Coverage**

- R&D
- Composites
- RFID
- Super capacitors (Electrical)
- Super capacitors (Electronic)
- Electronic Sensors
- ITO Replacement

## **Company Coverage**

- Applied Graphene material (AGM)
- Graphene Nanochem
- Vorbeck materials
- XG science
- Angstrom materials

## **Executive Summary**

Graphene refers to tightly packed layer of carbon atoms that are bounded together in a hexagonal honeycomb lattice. Graphene, also called the 'wonder material' by scientists and researchers is expected to replace silicon and copper in the future because of its incredible properties. Graphene products have already hit the market and are being used in day to day products like contact lenses, racquets, water filters, and antennas. Graphene has the potential to completely transfigure entire industries, creating flexible phones and touch screens, tiny self-powered oil and gas sensors and even synthetic blood.

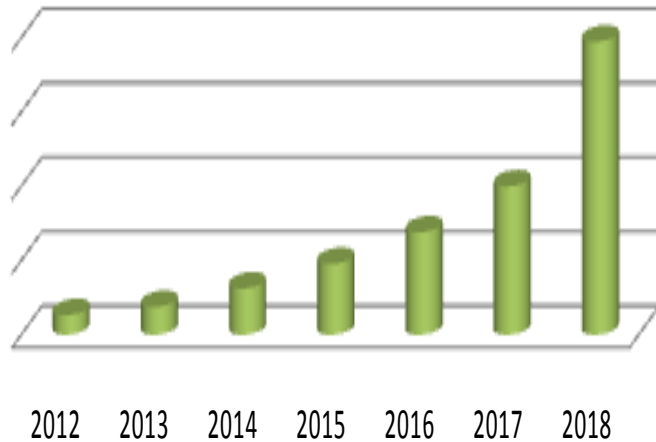
Further, strong research and development efforts will facilitate graphene's market penetration as a result of expansion of its scope and application sectors. Although graphene finds its applications in various sectors, it is anticipated that composite sector will account for half of the total market of graphene in the next five years.

Factors driving growth of global graphene industry market are increase in number of manufactures in the market, strong R&D, uses of graphene in different application sectors and increase in demand and production. In recent years, smaller companies have been entering in number of application sectors producing innovative products using graphene. However, high cost, absence of band gap, unsuitable properties and mounting cost in R&D pose major challenge to the industry's growth. Major trends prevailing in global graphene market are consolidation in the industry and intellectual property rights.

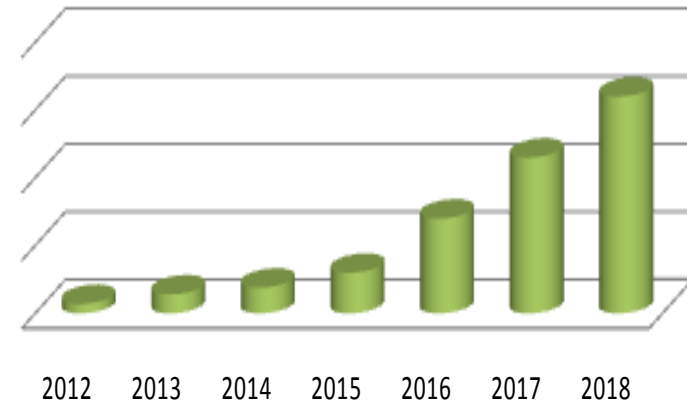
# Global Graphene Market Analysis

Graphene is a thick layer of graphite which was discovered in 2004 by Andre Geim and Konstantin Novoselov at the University of Manchester. Like graphite, graphene's atoms are arranged in a hexagonal lattice the only difference is rather than being made of stacked layers, graphene is one single layer just one thick atom.

**Global Graphene Market Production - By Volume (tonnes): 2012-18**



**Global Graphene Market- By Value, 2012-18 (US million)**

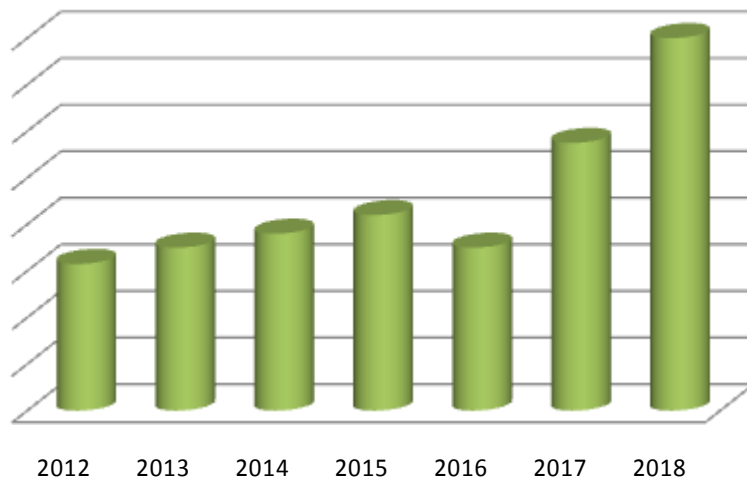


- Market size by volume of global graphene market is expected to reach to ..... graphene production in the year 2019, from ..... tonnes in 2013 by growing at a CAGR of.....%.
- Growth in the market is due to .....

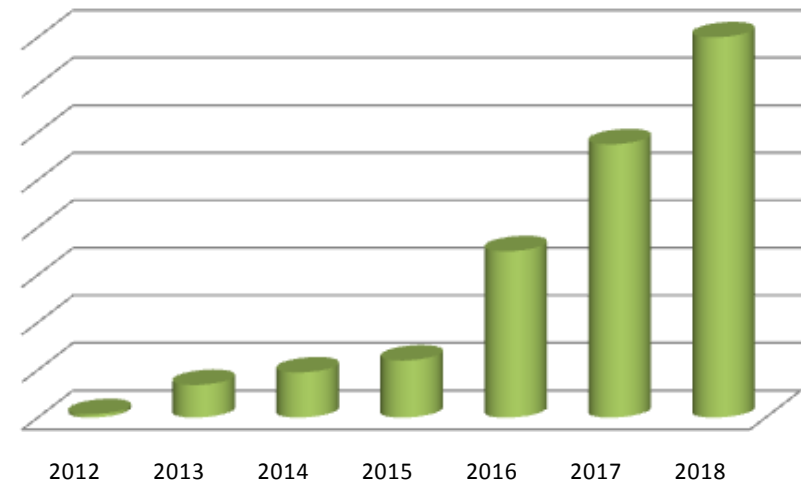
# Global Graphene Market Analysis- By Application

The market is growing and expected to grow much more in R&D, being in the initial stages, much emphasis is laid on its research and development. Several universities and countries across the world are funding for the wonder material research and development

**Application of Graphene in R&D By Value (US\$ million) - Forecast: 2015-2018**



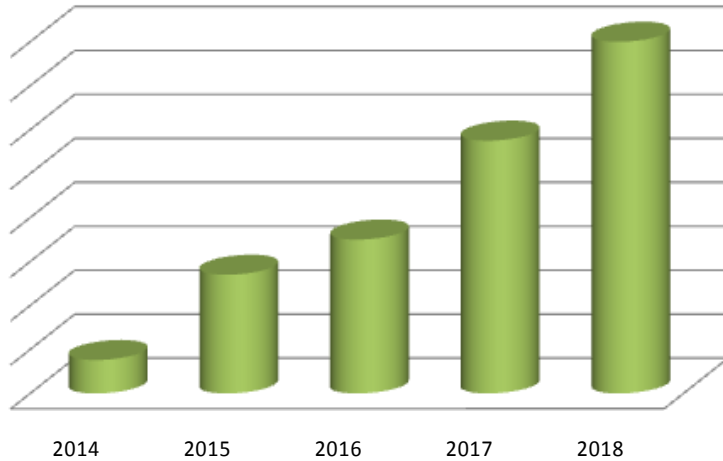
**Application of Graphene in Composites: By Value (US\$ million) - Forecast: 2015-2018**



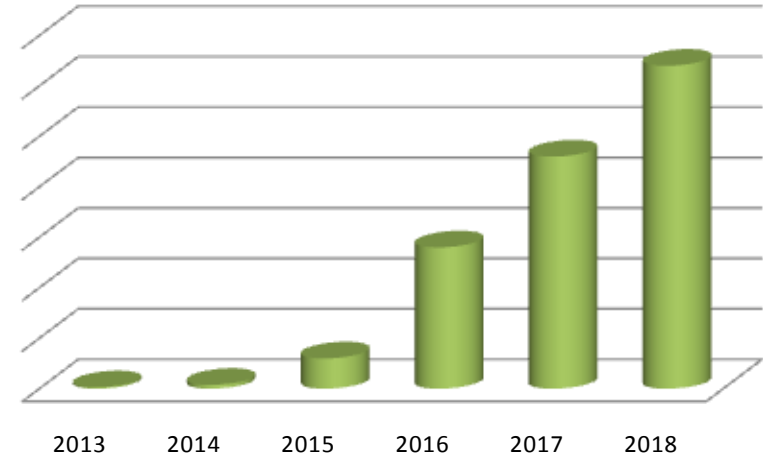
- In global graphene market .....value of R&D in the year 2012 was.....
- In global graphene market .....value of composites in the year 2012 was .....

# Global Graphene Market Analysis- By Application

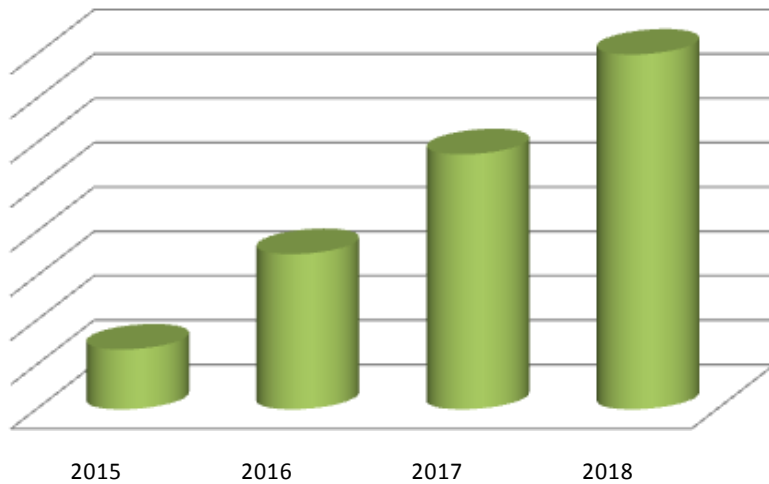
**Application of Graphene in RFID: By Value (US\$ million) - Forecast: 2015-2018**



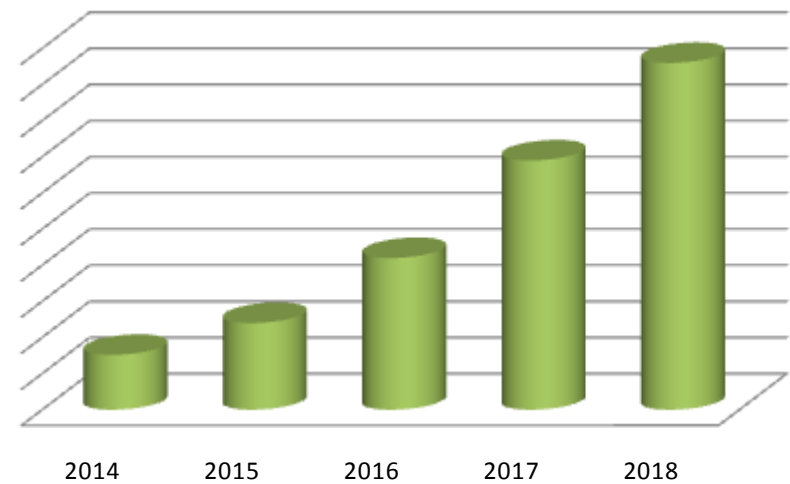
**Application of Graphene in Supercapacitors (Electrical): By Value (US\$ million) - Forecast: 2015-2018**



**Application of Graphene in Supercapacitors (Electronics): By Value (US\$ million) - Forecast: 2015-2018**



**Application of Graphene in Electronic Sensors: By Value (US\$ million) - Forecast: 2015-2018**



# Market Trends

## Consolidation in the industry

- .....
- .....
- .....
- .....

## Blue Chip associates with Targeting Product Launch

- .....
- .....
- .....
- .....

## Intellectual Property Rights

- .....
- .....
- .....
- .....