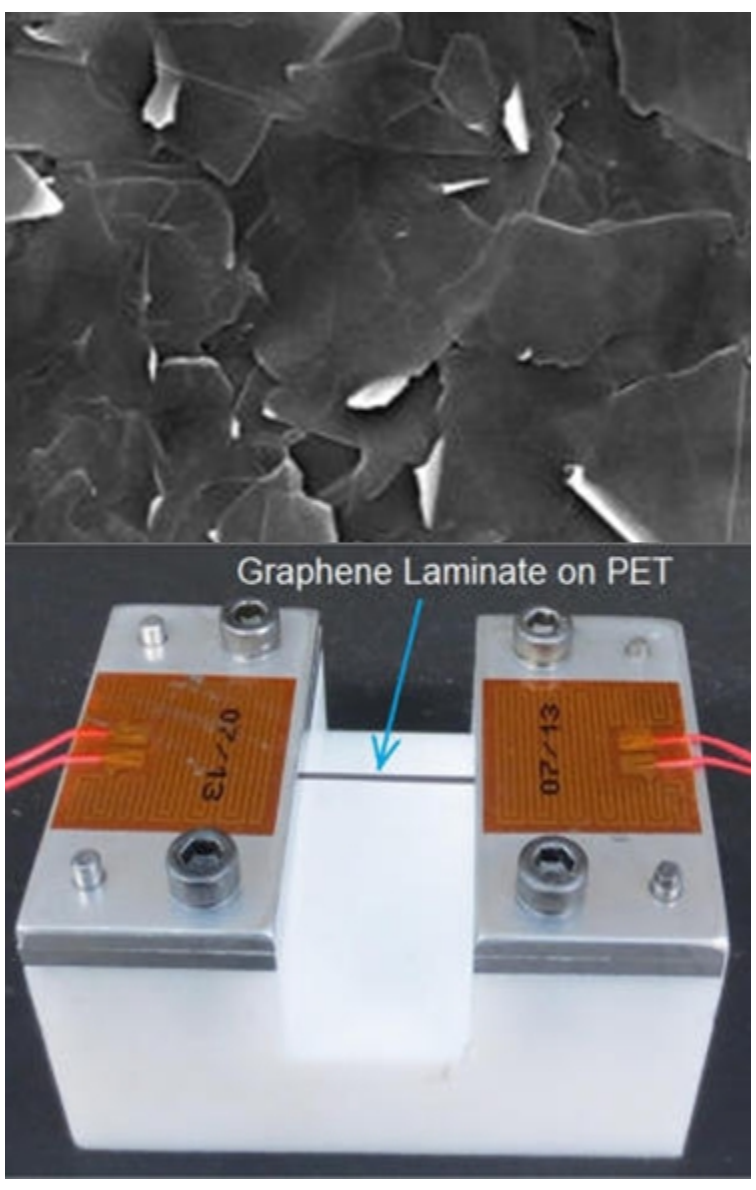
Graphen Layer Formation On A Carbon Based Substrate

Tech ID: 25912 / UC Case 2015-254-1

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,652,946	02/18/2014	2015-254

IMAGES



BRIEF DESCRIPTION

Background:

Plastics are cheap, durable, light-weight and have a wide range of practical applications. Despite its universality, plastic materials suffer from low thermal conductivity that limits them from many other uses. Graphene has many remarkable properties, that in conjunction with other materials, can enhance their functionality and usage in various market segments. The graphene market is projected to reach $200M by 2026.

Brief Description:

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OTHER INFORMATION

KEYWORDS

graphene, graphene laminate, thermal coating material, thermal conductivity, electronic component packaging, coating plastics

CATEGORIZED AS

- Materials & Chemicals
  - Nanomaterials
  - Thin Films

RELATED CASES

2015-254-1

UCR researchers have developed a novel system and method for forming graphene layers on a substrate. The system allows for direct growth of graphene on diamonds and low temperature growth of graphene using a carbon source. Due to the various novel features of the system, one can make the most of graphene's excellent intrinsic thermal conductivity by substantially improving the radio frequency characteristics. Thermal conductivity can be strengthened by adjusting the size and alignment of the graphene flakes.

ADVANTAGES

- Outperforms the current fabrication methods that use Si/SiO2 substrates: retains thermal conductivity, improves current-carrying capacity of graphene-on-diamond devices, easy preparation & scalability
- Outperforms heat conduction of plastics by 600-times

APPLICATIONS

- Thermal coating material for plastics, e.g. electronic component packaging, solid state lighting

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