

CVD graphene as a new materials platform for IT/ BT industry

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Abstract

Although graphene is widely considered as a next-generation material, it has yet to be released as a commercial product. The biggest obstacles in order to get on the market are price, quality equality and mass production[1].

To address this problem, LG Electronics has been developing R2R high-speed production technology for low-cost, high-quality and mass production since 2012, and as a result, it has secured graphene synthesis and process technology that can be produced reliably now.

In addition, various size control of graphene crystals, high electron mobility characteristics and high quality graphene synthesis technology with low defects were secured[2].

High-level quality control is managed within 10% of uniformity deviation of crystal size, defects, and electrical characteristics through a total inspection of continuous graphene synthesis using R2R.

And these results are pushing for graphene's big data through a database that features processes, analyses and assessments.

Based on these technologies, LG Electronics will supply raw materials around the world to accelerate the application of CVD Graphene and will work with related research groups to contribute to the discovery of CVD Graphene's Killer Application, which is needed for the IT/BT industry in the future[3. 4].

References

- [1] Novoselov, K. S. et al. roadmap for graphene. Nature 490, 192–200 (2012).
- [2] Vlassiuk, I. et al. Carbon 54, 58–67 (2013).
- [3] Insu Jo et al. Tension-Controlled Single-Crystallization of Copper Foils for Roll-to-Roll Synthesis of High-Quality Graphene Films. 2D Mater. 5, 024002 (2018).
- [4] METHOD FOR MANUFACTURING GRAPHENE, SAID GRAPHENE, AND APPARATUS FOR MANUFACTURING SAME. Patent No: US9764956

Figures

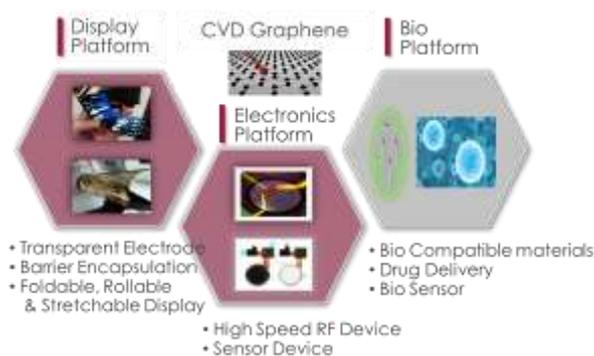


Figure 1: Materials Platform for IT/ BT Industry

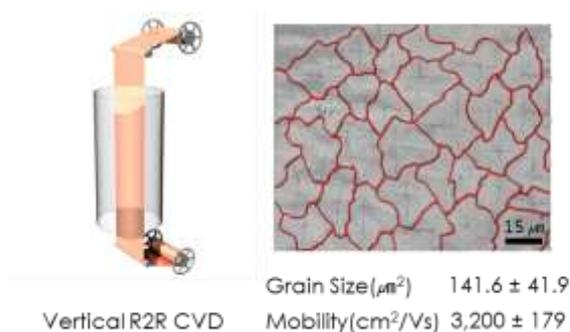


Figure 2: Schematic of Vertical Roll to Roll CVD System and Characteristics of CVD Graphene