

Preparation of large-area graphite membrane by electrophoretic deposition

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A new preparation route of graphite membrane has become an intensive research focus, because of the excellent mechanical, thermal and electrical properties of graphene. Here we investigated a new method of electrophoretic deposition (EPD) to prepare graphene membrane without using any binders or organic solvents, which results self-standing and binder-free graphene membrane with good packing morphology. The reduced graphene oxide (RGO) solution was prepared by the low-temperature reduction method from graphite oxide solution, subsequently being applied directly to the EPD. Thus the graphene layers fabricated onto the metal substrate. By etching the substrate and dry in the air, a self-standing graphite membrane is obtained. The resulting graphite membrane has potential on the application to the flexible device and energy-storage devices.