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(54) Title: SYNTHESIS OF THREE-DIMENSIONAL GRAPHENE FOAM: USE AS SUPERCAPACITORS

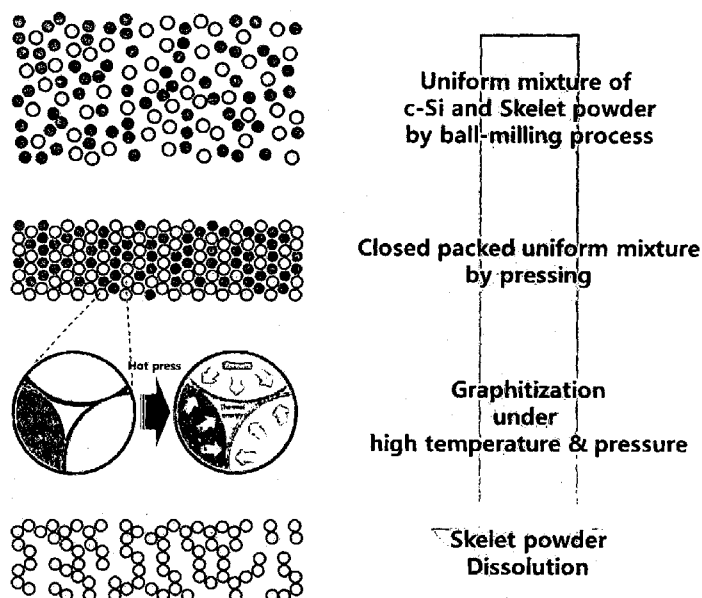


FIGURE 2

(57) Abstract: The application discloses methods of fabricating three-dimensional (3D) graphene crystalline foam, based on mixing a carbon source with a skelet (scaffold) powder. In one embodiment heat and pressure are used to compact the carbon and a metal powder into a close packed structure. In another embodiment a 3D crystalline graphene foam is fabricated with a large surface area (550m<sup>2</sup>/g) from a 3D metal foam, depositing a layer of graphene using chemical vapour deposition (CVD), depositing a polymer support and removing the metal via wet chemical etching, such that the graphene retains the configuration, and then finally removing the polymer. A method of fabricating the metal foam framework and coating the metal with graphene are also disclosed.



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