

Influence of transfers methods on the electrochemical properties the HSMG graphene

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Abstract

Graphene is currently used in an increasing number of applications. Each of them requires others parameters that should be this material characterized. The properties of graphene depend on many factors. First of all, on the structure of graphene has influence synthesis method. Other features characterize the CVD graphene and others metallurgical graphene. Another aspect having a large impact on the electrochemical properties of the graphene surface is its transfer from the growth medium to the target substrate on which it is further used. Its surface can be further modified and functionalized, but these changes will be dictated by the graphene parameters obtained after the transfer.

Tested for electrochemical properties was been the HSMG graphene (High Strength Metallurgical Graphene). For this purpose, graphene from the growthing substrate (cooper) was transferred on the silicon. The transfer was made using two methods: chemical etching and hydrogen delamination. In both cases, the PMMA film was used as the intermediate carrier. The research included Raman spectroscopy, FTIR spectroscopy and cyclic voltammetry, which thanks to which information on the course of electrochemical processes taking place on the surface of the material can be obtained. The obtained results show the relationship between the transfer method and the graphene electrochemical activity.

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