

NEW PROCEDURE FOR THE MANUFACTURE OF ELECTRODES OR MICROELECTRODES FROM SUPER POROUS NANOSTRUCTURED CARBONOUS MATERIALS

Description:

In recent years, interest in the use of porous carbonaceous materials as electrodes has increased considerably, due to their great accessibility, high thermal, chemical and physical stability, and relatively low cost. In addition, they have a high specific surface area, and, in some cases, a small pore size distribution –micro and mesopores– that can be easily modulated from the different preparation methods. All these properties make carbonaceous materials suitable as electrodes for use in different electrochemical applications. Although there are several procedures for the preparation of electrodes or microelectrodes, the procedure described in this invention, which consists of a technical variant of electrospray, notably facilitates the processing of nanostructured carbonaceous materials with which the preparation of a thin layer using conventional techniques is excessively complicated, expensive or damages the properties of the same. Specifically, the present invention describes a process that makes it possible to manufacture electrodes and / or microelectrodes for electrochemical and analytical applications, starting from the selective deposition of superporous nanostructured carbonaceous materials, directly by electrospray of a suspension of carbonaceous material with a binder on the collector of stream. The electrodes or microelectrodes obtained by means of this procedure and their uses for electrochemical and analytical applications are also the object of this invention.

Keywords:

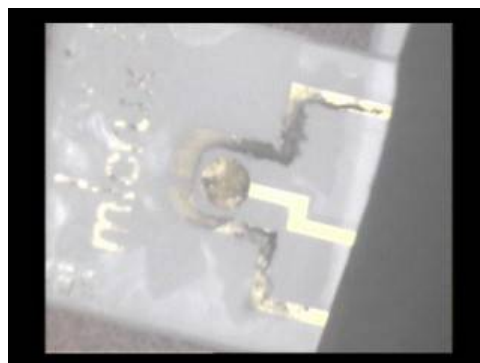
[Energy](#), [Electrodes](#), [Carbonaceous Materials](#), [Microelectrodes](#), [Electrochemistry](#), [Electrospraying](#), [Analytical Sensors](#)

Sectors:

[Environment and Energy](#), [Chemistry](#), [Others](#)

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[Nanotechnology](#), [Chemistry](#), [Energy methods and procedures](#), [Materials](#), [Synthesis and procedures](#)



Advantages:

The procedure for preparing the electrode or microelectrode and the use of these provides a series of advantages compared to those known so far: • It solves the complexity and the rest of the inconveniences that other procedures that are used to generate electrodes and microelectrodes suppose. • It has a high degree of reproducibility, especially compared to the blade coating technique. • Does not require subsequent pressing of the electrode to increase the degree of packing. • Does not require subsequent heat treatment at elevated temperatures. • The use of the electrode as a current collector considerably increases the efficiency of the procedure, in terms of selectivity of the deposit on the electrode.

Uses and Applications:

The present invention falls within the field of electrochemistry. In particular, the invention relates to the manufacture of electrodes and microelectrodes for electrochemical and analytical applications, such as energy storage devices, or as analytical sensors in commercial devices.

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