ELECTROCHEMICAL REGENERATION OF ACTIVATED CARBONS VERSUS THERMAL REGENERATION

TECNOLOGÍA PATENTADA

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RESUMEN

The research group Electrocatalysis and Polymer Electrochemistry of the University of Alicante has developed a new technology in order to regenerate activated carbons. The main advantages of this technology are: it can be used in situ and at room temperature and pressure.

This technology can be used in the following industrial sectors: pharmaceutical, waste recycling, drinking water, etc.

The research group is looking for companies interested in this technology for licensing agreement or technical cooperation.

VENTAJAS Y ASPECTOS INNOVADORES

MAIN ADVANTAGES OF THE TECHNOLOGY

- Allows regeneration of activated carbon **in the same place** where it is being used (in-situ regeneration), avoiding removal and transport activated carbon.
- The **equipment** used is **simple** (requires no additional handling or transport of chemicals), and provides a very **economical process** and **easy control**.
- It works at **room temperature** and **atmospheric pressure**, unlike the heat treatment, which uses temperatures between 600-1000 °C, and oxidizing or inert gases.
- The treatment **can be stopped in seconds**, controlling the regeneration process at different time scales.
- The regeneration **efficiency is very high (85-90%)**.
- The **energy consumption is lower than in thermal regeneration**. For example, electrochemical regeneration of activated carbon saturated with phenol has an efficiency of 85%, takes place between 2-3 hours and consumes between 0.20-1.80 Wh/kg respect thermal regeneration, which consumes between 2-2.5 Wh/kg to obtain a similar efficiency (this energy consumption is "on the scale of kilos").
- The **textural properties** of the original material **are slightly modified**.
- It enables not only activated carbon regeneration, but also to enhance the performance of adsorption process **increasing the adsorption capacity** of the porous material and the rate of adsorption.

INNOVATIVE ASPECTS

- Electrochemical technology enhances performance in many aspects of currently technologies (thermal regeneration), as already described above. It is characterized by a **high efficiency**, **sustainability** and **more economical** than conventional technologies.
- It is therefore a real promising alternative that offers a **great business opportunity** in the growing market of activated carbon regeneration.

APLICACIONES DE LA OFERTA

• MEDICAL/HEALTH RELATED:

Other Medical/Health Related.

• INDUSTRIAL PRODUCTS:

Chemicals and Materials.

Pollution and Recycling Related.

• OTHER:

Utilities and Related Firms.

COLABORACIÓN BUSCADA

The research group is looking for companies interested in licensing agreement or technical cooperation of this technology.