DEVELOPMENT OF NOVEL ADSORBENTS AND CATALYSTS BASED ON ACTIVATED CARBON

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RESUMEN

The Advanced Materials group (LMA) of the Department of Inorganic Chemistry at the University of Alicante has a vast expertise in the development, characterisation and application of adsorbents, mainly activated carbon. Many of the adsorbents have been developed for specific applications, covering gas storage, separation and purification of gas mixtures, removal of toxic agents and atmospheric contaminants, catalysis, etc. Furthermore, many of the adsorbents have been developed under different physical forms, ranging from powdered and granular to pellets, monoliths and cloths, thus increasing the possibilities of use in different industrial applications. The preparation of the adsorbent is first carried out at laboratory level and, when needed, the process is scalated into pilot plant. Three pilot plants are available for the preparation of different types and forms of adsorbents.

VENTAJAS Y ASPECTOS INNOVADORES

The deep knowledge of the preparation, characterisation and application of adsorbents and catalysts is favourably used by the LMA group to design, prepare and test new forms able to satisfy the new technological demands. Although there are many commercial activated carbons available, most of them are intended for general use and consequently new forms are required when a new application is sought. The technology of the LMA group is able to produce the desired adsorbent for a specific application. The work at laboratory level can be scaled in appropriate pilot plant facilities, and the group has the necessary facilities for the most complete characterisation of adsorbents and catalysts, also including facilities for application in static and dynamic tests.

The LMA group has deep knowledge about new forms of design, preparation and testing of characterisation and application of adsorbents and catalysts for a large number of market applications.

APLICACIONES DE LA OFERTA

The market application of the adsorbents and catalysts described above is very wide. In the case of adsorbents, they can be used in purification of industrial gases and liquids, gas separation, removal of toxic and contaminants from air and water, gas storage, controlled storage and delivery of substances, etc.., For the case of catalysts, they are intended for selective catalytic reactions in the production of fine chemicals, or for environmental applications.

COLABORACIÓN BUSCADA

The LMA group has the experience and know-how, as well as the experimental installations, to develop specific adsorbents and catalysts for industrial applications. The most usual cooperation has consisted up to now in developing under request these materials at laboratory level and, when considered necessary, scaling to pilot plant (additionally, static and dynamic tests can be carried on the materials upon request). In some cases, the transfer of know-how has been carried out by the corresponding agreement.