

Comparison of gold supported catalysts obtained by using different allotropic forms of titanium dioxide

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Gold catalysts were prepared on different allotropic phases of TiO₂ using the colloidal deposition method. The supports were chosen in order to study the influence of the support structure on the catalytic activity of the final material. Furthermore, for the same allotropic modification of titania, materials with a different particle size distributions have been used to study the influence of the grain size of the support on the deposition of the colloid. Our results indicate that the activity of the final catalyst is not much affected by the variation of the titania structure, though the situation becomes different when the catalyst is calcined at different temperatures. In this case, pure anatase and rutile supported catalysts showed a lower thermostability than the one prepared using P25 titanium oxide (Degussa). Concerning the colloid immobilization on the support it was found that the most important parameter is the grain size of the support. In particular, the deposition of the colloidal gold particles is greatly enhanced in the case of supports composed of particles of few nanometers in size.

KEY WORDS: gold catalysts; CO oxidation; anatase; rutile; colloidal deposition.