

Instituto de Química

Departamento de Química Inorgânica

Produções / Resumos Publicados

Resumos publicados em anais de congressos (internacional)

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2. RIBEIRO, E. S.; ROSATTO, S.S.; GUSHIKEM, Y.; KUBOTA, L.T.; "Eletroxidação de NADH pelos corantes azul meldola de metileno e de toluidina adsorvidos sobre SiO₂/Sb₂O₃", 09/2002, XV Congresso da Sociedade Ibero-americana de Electroquímica, Vol. 1, pp.1-1, Évora, PORTUGAL, 2002 *
3. FRANCISCO, M.S.P.; LANDERS, R.; GUSHIKEM, Y.; "Acidic, surface and local order structure properties of SiO₂/Nb₂O₅ system prepared by sol-gel processing methods.", 09/2002, Third International Conference on Inorganic Materials, Vol. 1, pp.131-131, x, ALEMANHA, 2002
4. FRANCISCO, M. S. P.; GUSHIKEM, Y.; "Surface structure investigation of SiO₂/Nb₂O₅ system prepared by sol-gel processing method.", 09/2002, International Conference Functionalized Materials: Synthesis, Properties and Application, Vol. 1, pp.97-98, x, UCRANIA, 2002
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8. FALJONI-ALÁRIO, A; ROSSI, A.V.; SANTOS FILHO, P.F. dos; JORGE, R.A.; DA SILVA, A.B.F.; VIEIRA, Emerson Monteiro; GAMBARDILLA, M.T.P.; FERREIRA, L. H.; BONFÁ-RODRIGUES, R.M.; MOREIRA, W.C.; LOPES, M.N.; IAMAMOTO, Y.; "Ingreso a cursos de Química en Brasil", 09/2002, XXV Congreso Latinoamericano de Química

POROSITY CHARACTERIZATION OF SURFACE BONDED ANTIMONY ON SILICA – ZIRCONIA MIXED OXIDE

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Surface bonded antimony (V) oxide on silica-zirconia mixed oxide (Si,Zr,Sb) has been prepared in two steps. At first a series of silica-zirconia mixed oxides (Si,Zr) were obtained by sol-gel method where the zirconium content was varied from 8 to 15 wt%. Next, they were modified in similar conditions by SbCl₅ aqueous solution.

Specific surface area (S_a) of materials obtained was calculated by the BET method and the external surface area (S_{ext}) - by the t-plot. Cumulative surface area of pore (S_p) was obtained from MP-method data. Micropore volume (V_{mp}) was estimated by the MP, t-plot and Horvath-Kawasoie (H-K) methods. The average micropore size (radius R_{mp} or diameter D_{mp}) and the pore size distribution were evaluated by the H-K and MP methods.

Typical Langmuir type I isotherm adsorption are observed, which indicates the creation of a large amount of ultramicropores. The adsorption amounts of N₂ on all examined samples increased little as the relative pressure increased in the range above $p/p_0 > 0.05$, suggesting that external surface areas of samples was small. The shape of the nitrogen isotherms of Si,Zr and Si,Zr,Sb samples obtained at low pressure indicates the presence one group of micropores. The specific surface areas, between 649 and 276 m².g⁻¹, and average pores diameter, between 0.64 and 0.78 nm, were obtained. The internal surface areas of Si,Zr,Sb mixed oxides are increased compared to initial Si,Zr oxides and come to 460-300 m².g⁻¹. S_{BET} and S_{MP} were decreased with increasing of Zr contents in silica-zirconium mixed oxides.

Value of micropore volumes (V_{mp}) estimated by the MP, t-plot and H-K methods are in the good agreement and the change in V_{mp} showed a similar trend with surface area.

The pore size distribution indicated that the contribution of ultramicropores to the micropore volume of the material obtained are significant.