

Supplementary Materials

Supported Silver Nanoparticles as Catalysts for Liquid-Phase Betulin Oxidation

Anna Grigoreva ¹, Ekaterina Kolobova ^{1,*}, Ekaterina Pakrieva ¹, Päivi Mäki-Arvela ², Sónia A.C. Carabineiro ^{3,4}, Alina Gorbunova ¹, Nina Bogdanchikova ⁵, Dmitry Yu. Murzin ² and Alexey Pestryakov ^{1,*}

¹ Research School of Chemistry & Applied Biomedical Sciences, National Research Tomsk Polytechnic University, 634050 Tomsk, Russia; bar0710@mail.ru (A.G.); epakrieva@mail.ru (E.P.); aag844@tpu.ru (A.G.)

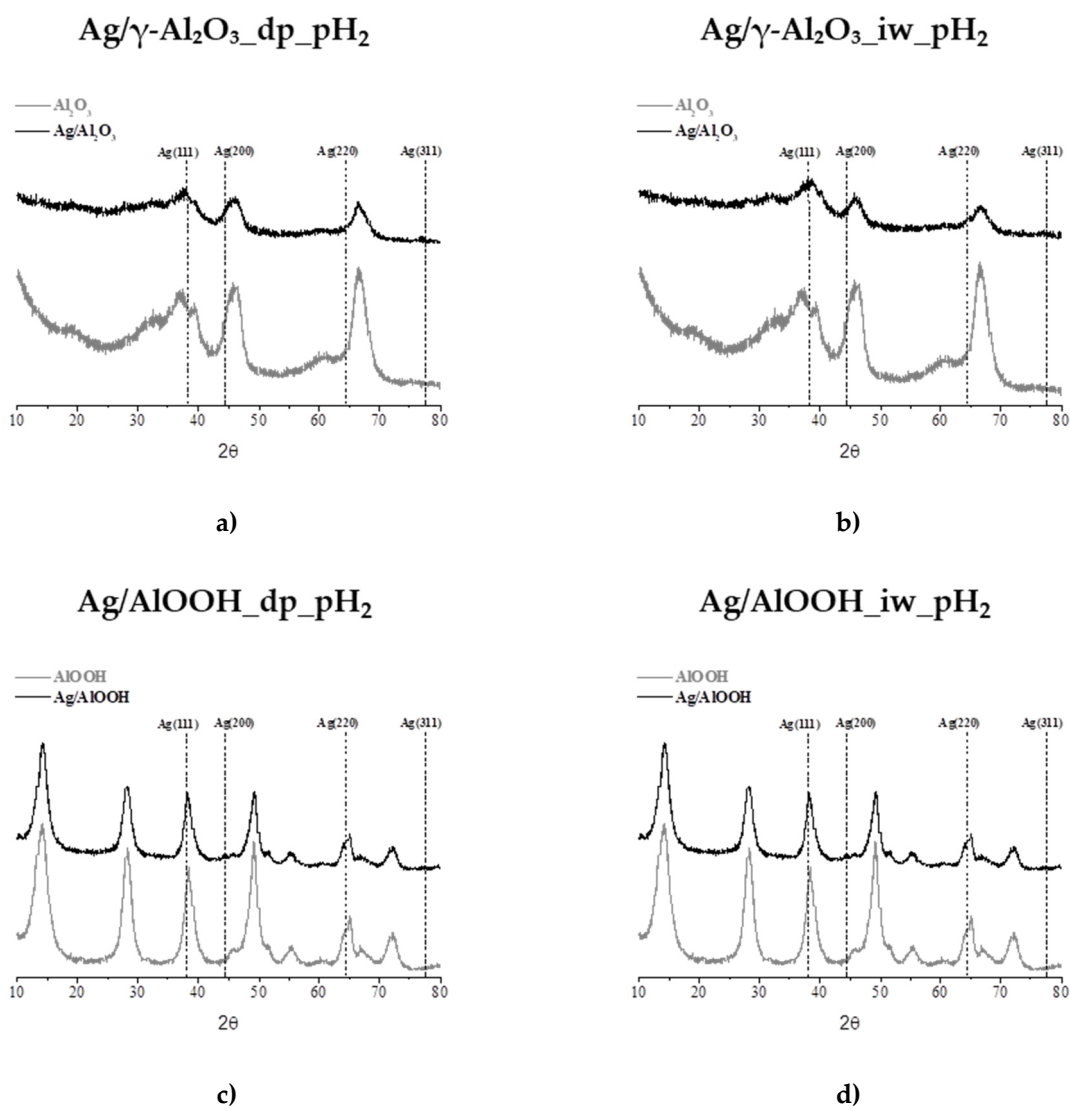
² Johan Gadolin Process Chemistry Centre, Åbo Akademi University, 20500 Turku/Åbo, Finland; pmakiarv@abo.fi (P.M.-A.); dmurzin@abo.fi (D.Y.M.)

³ Centro de Química Estrutural, Instituto Superior Técnico, Universidade de Lisboa, 1049-001 Lisboa, Portugal; sonia.carabineiro@fct.unl.pt

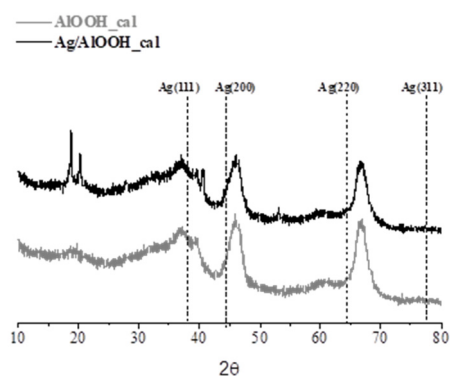
⁴ LAQV-REQUIMTE, Department of Chemistry, NOVA School of Science and Technology, Universidade NOVA de Lisboa, 2829-516 Caparica, Portugal

⁵ Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, 22800 Ensenada, Mexico; nina@cnyu.unam.mx

* Correspondence: ekaterina_kolobova@mail.ru (E.K.); pestryakov2005@yandex.ru (A.P.)

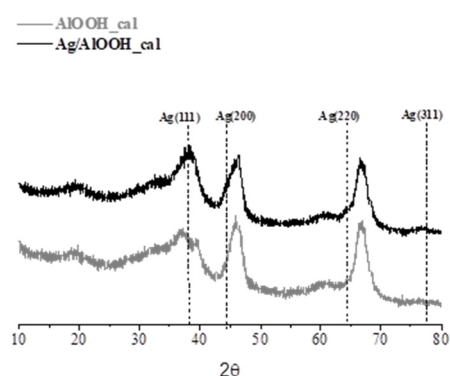


Ag/AlOOH_cal_dp_as



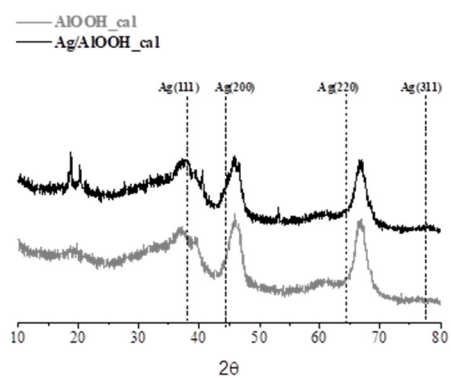
e)

Ag/AlOOH_cal_dp_pH₂



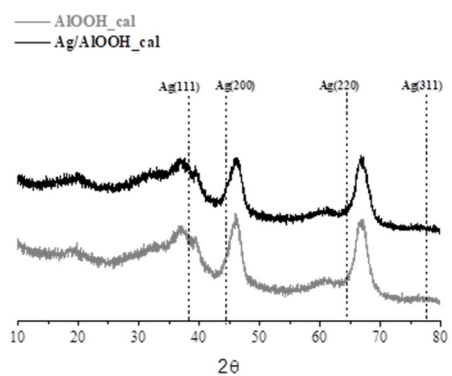
f)

Ag/AlOOH_cal_dp_pO₂



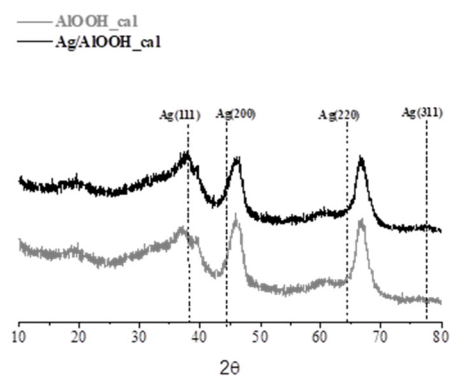
g)

Ag/AlOOH_cal_iw_as



h)

Ag/AlOOH_cal_iw_pH₂



i)

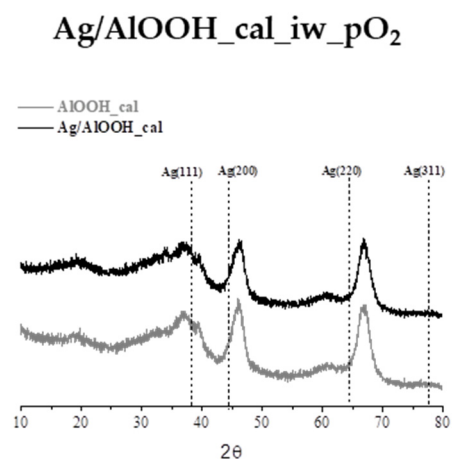


Figure S1. XRD patterns for studied silver catalysts and their corresponding supports: **a)** γ -Al₂O₃ and Ag/ γ -Al₂O₃_dp_pH₂; **b)** γ -Al₂O₃ and Ag/ γ -Al₂O₃_iw_pH₂; **c)** AlOOH and Ag/AlOOH_dp_pH₂; **d)** AlOOH and Ag/AlOOH_iw_pH₂; **e)** AlOOH_cal and Ag/AlOOH_cal_dp_as; **f)** AlOOH_cal and Ag/AlOOH_cal_dp_pH₂; **g)** AlOOH_cal and Ag/AlOOH_cal_dp_pO₂; **h)** AlOOH_cal and Ag/AlOOH_cal_iw_as; **i)** AlOOH_cal and Ag/AlOOH_cal_iw_pH₂; **j)** AlOOH_cal and Ag/AlOOH_cal_iw_pO₂; dp—deposition-precipitation with NaOH method; iw—incipient wetness impregnation method; as—as-prepared sample; pH₂—pretreated in H₂; pO₂—pretreated in O₂.