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Copper/Zinc L-Tartrates: Mixed Crystals and Thermolysis to a Mixture of Copper Oxide and Zinc Oxide That Is Catalytically Active in Methanol Synthesis

Rainer Weiss,[a] Sascha Vukojević,[b] Christian Baltes,[b] Raoul Naumann d'Alnoncourt,[c] Martin Muhler,[c] and Matthias Epple*[a]

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The system consisting of copper/zinc L-tartrate mixed crystals has been systematically explored in the whole range from pure copper tartrate to pure zinc tartrate. Mixed crystal L-tartrates were prepared and their thermochemical behaviour under oxygen was investigated. Oxidic precatalysts (CuO/ZnO) for catalytic tests in methanol synthesis were prepared by mild thermolysis of the mixed tartrates in air at 300 °C. Catalytic tests were performed with a multi-channel parallel reactor. The catalytic activity shows a maximum at about equal amounts of copper and zinc whereas the specific surface area (BET surface) increases strongly when going from CuO to ZnO. This system offers a convenient, inexpensive route to CuO/ZnO precatalysts with adjustable compositions that avoids all other metals during preparation.