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(54) Title: SILICA-STABILIZED ULTRAFINE ANATASE TITANIA, VANADIA CATALYSTS, AND METHODS OF PRODUCTION THEREOF

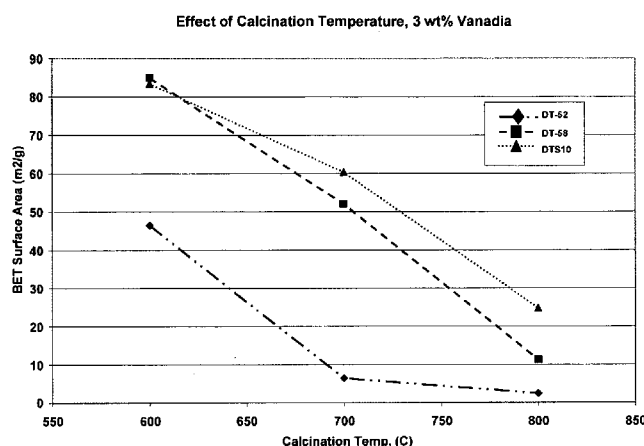


Figure 1

(57) Abstract: The invention is directed to compositions and processes for the production of silica-stabilized ultrafine anatase titanias and which may further comprise tungsten and vanadia. The surface stabilization may be by treatment of the TiO₂ particles with a low molecular weight and/or small nanoparticle form of silica such as, in preferred embodiments, a tetra(alkyl)ammonium silicate or silicic acid, which serves to efficiently maintain the anatase phase and prevent crystal growth under severe thermal and hydrothermal conditions, even in the presence of vanadia. The vanadia catalysts produced from the novel titanias have equal or improved catalytic activity for selective catalytic reduction of NO_x compared to conventional vanadia supported silica- titania based catalysts. The invention is further directed to diesel emission catalytic devices comprising the novel titania-based catalyst compositions.