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(54) Title: DIRECT EPOXIDATION CATALYST AND PROCESS

(57) Abstract: A catalyst, useful for the direct epoxidation of olefins, is disclosed. The catalyst comprises palladium nanoparticles, support nanoparticles, and a titanium zeolite having a particle size of 2 microns or greater. The palladium nanoparticles are deposited on the support nanoparticles to form supported palladium nanoparticles, and the supported palladium nanoparticles are deposited on the titanium zeolite; or the supported palladium nanoparticles are deposited on a carrier having a particle size of 2 microns or greater. The invention also includes a process for producing an epoxide comprising reacting an olefin, hydrogen and oxygen in the presence of the catalyst. The catalysts are more active in epoxidation reactions, while demonstrating the same or better selectivity.