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(54) Title: HETEROGENEOUS EPOXIDATION CATALYST

(57) Abstract: Highly active and selective epoxidation catalysts are prepared by combining high surface area silica support or the like, having surface area greater than 1100 m^2/g, with a titanium source. The titanium source is a non-oxygenated hydrocarbon solution of a titanium halide or a vapor stream of titanium tetrachloride. The impregnated support is then calcined at an elevated temperature (preferably, in a substantially oxygen-free atmosphere), and, optionally, reacted with water and/or silylated. The resulting materials are highly active heterogeneous epoxidation catalysts for the reaction of olefins with organic hydroperoxides.