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(54) Title: PROCESS FOR THE PREPARATION OF HIGH ACTIVITY CARBON MONOXIDE HYDROGENATION CATALYSTS; THE CATALYST COMPOSITIONS, AND THEIR USE

(57) Abstract

A process for the preparation of a novel highly active, highly selective catalyst useful for conducting carbon monoxide hydrogenation reactions, particularly Fischer–Tropsch reactions, the catalyst *per se*, and process for use of such catalyst in conducting carbon monoxide hydrogenation reactions, particularly Fischer–Tropsch synthesis reactions. The catalyst is prepared by contacting together, preferably by dispersing in a liquid, a preformed, particulate refractory inorganic oxide support, preferably a fumed silica support, compound or salt of a catalytic metal, or metals, i.e., a metal selected from Groups IB, IIB, VIIB or VIII of the Periodic Table, preferably cobalt, an oxidizable alcohol, oxidizable aldehyde, or oxidizable ketone promoter, suitably glyoxal, and an oxidant sufficient to react with the promoter and convert the metal, or metals, to an insoluble highly dispersed metal carboxylate which is deposited and supported on the support. The solids are recovered, and heated at an elevated temperature to reduce the catalytic metal, or metals, to the zero–valent state and form the catalyst composite. This catalyst in its reduced form is very active, and selective, in conducting carbon monoxide hydrogenation reactions, particularly in converting a mixture of hydrogen and carbon monoxide to C_{5+} hydrocarbons, on contact of the gaseous mixture with the catalyst at reaction conditions.