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(54) Title: A CATALYST AND PROCESS FOR THE SYNTHESIS OF C₂-OXYGENATES BY THE HYDROGENATION OF CARBON MONOXIDE

(57) Abstract: A catalyst is invented for the synthesis of C₂-oxygenates by the hydrogenation of CO. The catalyst is composed of Rh-Mn-Fe-M₁-M₂/SiO₂, among them Mn, Fe, M₁ and M₂ and additives. M₁ can be Li or Na while M₂ can be Ru or Ir. The content of Rh is 0.1-3% by weight; the weight ratio of Mn/Rh is 0.5-12, the weight ratio of Fe/Rh is 0.01-0.5, the weight ratio of M₁/Rh is 0.01-1 and the weight ratio of M₂/Rh is 0.1-1.0. The catalyst is prepared by impregnation of the solution of corresponding compounds of each component in desired amount onto the carrier of SiO₂, which is followed by drying at 283-473 K. Before using, the catalyst is reduced by hydrogen or hydrogen-containing gas at 573-673 K for at least one hour after drying or after calcinations at 473-673 K for 2-20h. These catalysts can convert CO and H₂ into ethanol, acetaldehyde, acetic acid and other C₂-oxygenates at a high conversion and a high selectivity under mild conditions.



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