

A NEW CATALYST FOR HIGHER ALCOHOL SYNTHESIS. J. Skrzypek, K. Krupa, M. Lachowska and H. Moroz, Institute of Chemical Engineering, Polish Academy of Sciences, PI-44-100 Gliwice, ul. Baltycka 5, Poland.

Higher alcohols C_1-C_9 are of current interest as blending stocks for motor gasoline. Furthermore, they can be a real alternative for MTBE since they are entirely based on natural gas and are good octane boosters and combustion improves.

A catalyst containing CuO (50-60 wt.%), ZnO (25-30 wt.%), ZrO_2 (7-14 wt.%), Fe_2O_3 (1-4 wt.%), MoO_3 (7-15 wt.%), ThO_2 (1-3 wt.%), and Cs_2O (0.5-1.5 wt.%) has been developed. The catalyst was prepared by an original method of decomposition of organic complexes containing metallic components of catalyst, e.g., thermal decomposition of citrates. This catalyst yielded up to 150 g/kg_{cat}·h liquid product containing 30-40 wt.% of the most valuable alcohols C_{2+} .

The effect of temperature, pressure, contact time and synthesis gas composition were determined. The best results were obtained for temperature $T = 630-650$ K, pressure $P = 10$ MPa, GHSV = 6000-8000 hr⁻¹ and $H_2/CO = 1.0-1.3$ [mol/mol].