

34948 K/15 E17 UNIC 30.09.81
 UNION CARBIDE CORP *EP--75-937
 30.09.81-US-307216 (06.04.83) B01-31/20 C07c-29/15 C07c-31/20

Ethylene glycol prodn. from synthesis gas - using combination of ruthenium and rhodium catalysts

C83-034128 D/S: F(BE DE FR GB IT NI SE).

Prodn. of alcohols, including methanol and ethylene glycol (EG), is effected by contacting a mixt. of H₂ and CO with a homogeneous liq. phase contg. a ruthenium catalyst (I) and a rhodium cocatalyst (II).

Also claimed is the catalyst compsn. as defined above.

ADVANTAGES

Combinations of (I) and (II) give higher EG formation rates (at the expense of MeOH) than prior art catalysts.

DETAILS

(I) and (II) are pref. carbonyl complexes, opt. formed in situ from suitable Ru and Rh cpds. The liq. phase pref. includes a Lewis base promoter and a solvent. Suitable promoters are alkali metal acetates or iodides. Suitable solvents are ethers, N-methylpyrrolidone (NMP) and acetic acid. The reaction is pref. effected at 50-400 C and

E(5-M, 10-E4B, 10-E4E, 35-X) N(2-E, 5-B)

000

500-12,500 psia. The Rh:Ru atomic ratio is pref. 1:1-100 (esp. 1:5-50) and the promoter concn. may be 0.1-1,000,000 moles per g-atom Ru. Unreacted H₂ and CO may be recycled.

EXAMPLE

An autoclave was charged with 6 mmoles Ru₃(CO)₁₂, 3 mmoles Rh(CO)₂(acac), 75 ml. NMP and 18 mmoles NaI, pressurised with 12,500 psig. of a 1:1 mixt. of H₂ and CO, and heated at 230 C (time not specified). The prodn. rates (mole/l.hr.) were 3.45 for MeOH and 2.89 for EG. (55pp307). (F) ISR: FP--33425 FP--13008 US4315994.

EP--75937