

Methane reacts with metal oxides at 800-900°C with ethylene as one of the products [1]. We have discovered that passing methane ( $P \approx 0.1$  MPa) at a volumetric rate of 500-2000  $\text{h}^{-1}$  through a bed of FeS, CdS,  $\text{Cu}_2\text{S}$ , or PbS at 800-900°C in the absence of oxygen gives 3-5% conversion of this compound to ethylene and propylene, whose yields are 98 and 2%, respectively, relative to the amount of gas consumed. Partial desulfurization of the sulfide with the formation of  $\text{H}_2\text{S}$  occurs concurrently. It has been previously established that the ethylene yield in the presence of quartz as the reactor material is less than 0.5%. In these experiments, we used methane corresponding to TU 51-841-87 not containing traces of  $\text{O}_2$  as indicated by gas-liquid chromatography.

## LITERATURE CITED

1. G. E. Keller and M. M. Bhasin, J. Catal., 73, No. 1, 9 (1982).