SURFACE PROPERTIES OF Fe—Mo—O CATALYSTS
AND THEIR ACTIVITY IN METHANOL
OXIDATION TO FORMALDEHYDE

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The FeIII—MoVI—O catalyst was prepared from iso-ortho-Fe(OH)₃ and
γ-FeOOH. The catalysts differed markedly in their activity in methanol
oxidation depending on the “biography” of their iron(III) oxide. The catalytic
properties were found to depend on the pore structure of the catalyst.

INTRODUCTION

Two groups of catalysts are generally used in the oxidation of methanol to
formaldehyde:

- iron-molybdenum oxide catalysts, if the gaseous reactant mixture contains
  less than 10% CH₃ OH in air;
- silver and copper catalysts, active if the gaseous reactant mixture con-
  tains more than 40% CH₃ OH in air.

Earlier results /1/ have led to the conclusion that the maximum catalytic
activity is observed when the Mo/Fe atomic ratio is about 1.7–1.9. Contradictory
views have been expressed in the literature as to the interaction of Fe(III) and Mo(VI)