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SURFACTANT TEMPLATED SYNTHESIS OF POROUS VO_x-ZrO_2 CATALYSTS FOR ETHANOL CONVERSION TO ACETALDEHYDE

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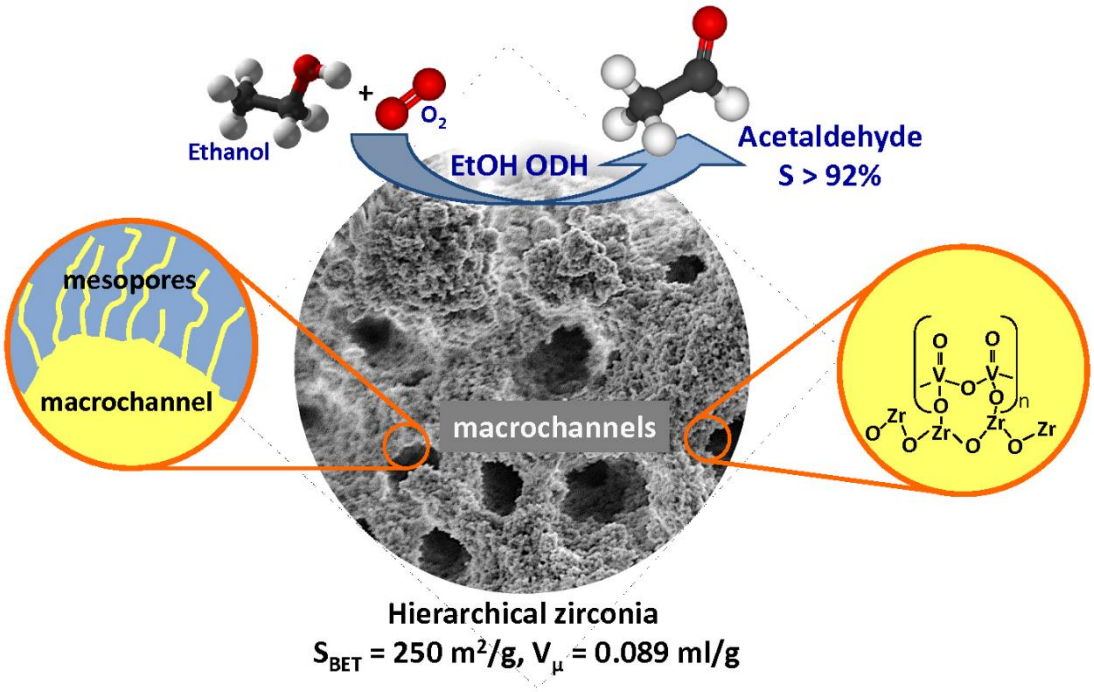
Graphical Abstract



Highlights

- Synthesis of novel hierarchically porous vanadium containing zirconias
- Demonstration of notable activity in ethanol oxidative dehydrogenation
- Outstanding selectivity to acetaldehyde (S > 92 % at X = 60%)
- Improved stability against crystallization up to 550°C

Abstract

Synthesis of VO_x-ZrO_2 catalysts with hierarchical porosity is reported here for first time. Surface areas of prepared materials reached values up to 211 m^2/g with the intrinsic porosity on the border between micro- and mesopores. Physico-chemical properties and catalytic activity in ethanol oxidative dehydrogenation to acetaldehyde of these materials are compared with VO_x/ZrO_2 catalyst obtained by vanadia deposition on the surface of the already