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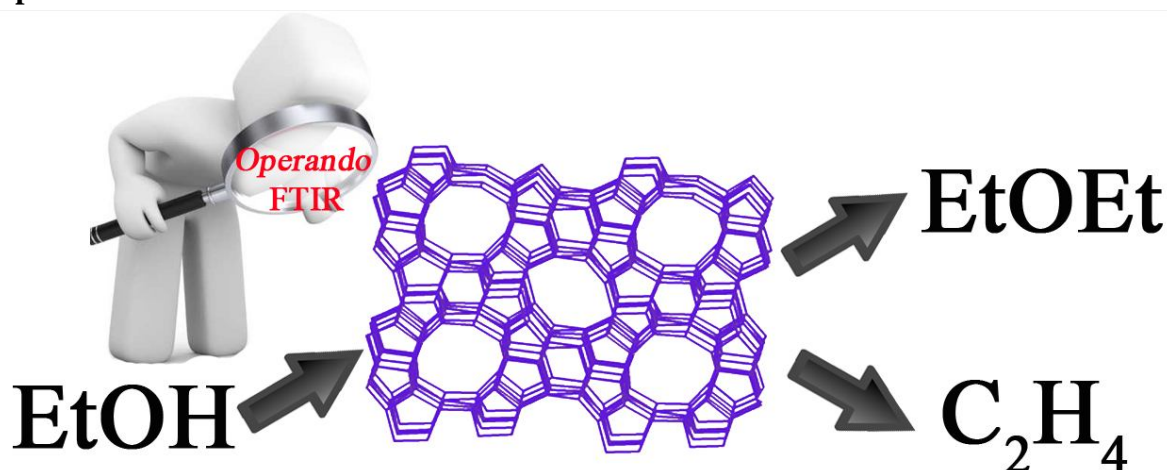
## IR Operando Study of Ethanol Dehydration over MFI Zeolite

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## Graphical abstract



## Highlights

- IR Operando spectroscopy allows to follow ethanol dehydration pathways in H-MFI
- Reaction conditions govern the amount of formed ethanol monomer and dimer species
- Dimer-assisted etherification is favored at high pressure and low temperature
- DEE decomposition contributes to ethylene formation over H-MFI at 488 K

## Abstract

Zeolite-catalyzed dehydration of ethanol is an attractive economically feasible route for production of ethylene and butenes. The goal of this contribution is to monitor the intermediate species on the surface of “working” catalyst to rationalize the influence of the reaction conditions and zeolite characteristics on the dehydration pathways. With this respect **the rates of diethyl ether (DEE) and ethylene formation in ethanol dehydration** along with the quantification

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