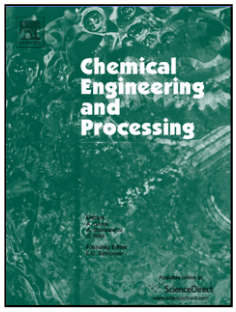

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Ethane oxidative dehydrogenation to ethylene in a membrane reactor with asymmetric ceramic membranes

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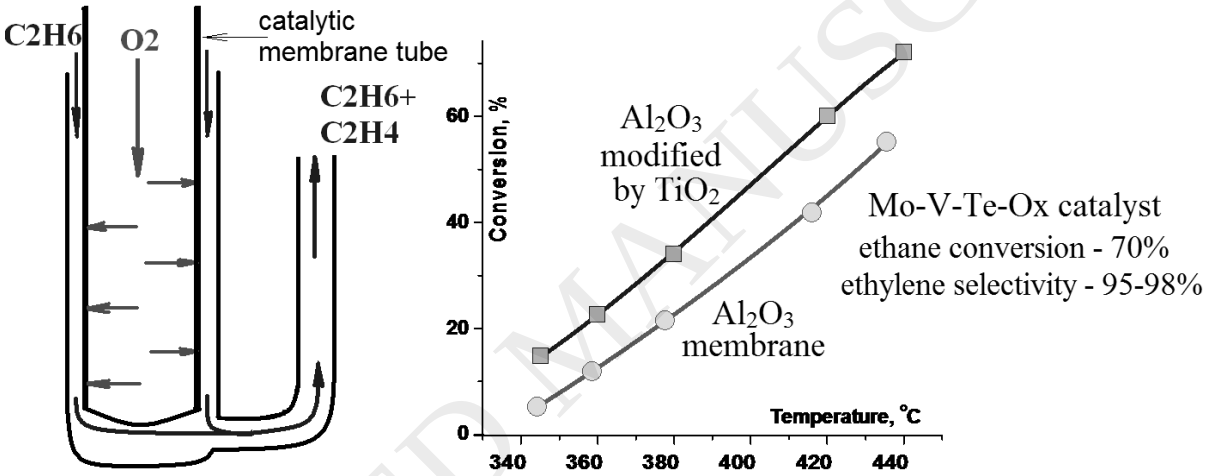
Graphical abstract



Highlights

- Catalytic layers on alumina porous tubes were used for ethane oxidation to ethylene.
- The using of the membrane reactor increases efficiency of ethylene production.
- Ethane conversion of 70% with ethylene selectivity of 95-98% could be achieved.
- The best results were obtained for alumina membranes covered with TiO_2 layer.
- High oxygen/ethane ratios may be used for the process in the membrane reactor.