Abstract

Reactor membranes advantageously useful in oxidation reactions of hydrocarbons involving oxygen comprise a selective oxidation catalyst on a mixed conducting, oxide ion selective ceramic membrane of the composition $(Sr_{1-x}Ca_x)_{1-y}A_yMn_{1-z}B_zO_{3-\delta}$, where

A is Ba, Pb, Na, K, Y, an element of the lanthanide group or a combination thereof,

B is Mg, Al, Ga, In, Sn, an element of the 3d or 4d period or a combination thereof,

x is from 0.2 to 0.8,

y is from 0 to 0.4,

z is from 0 to 0.6, and

δ is a number, dependent on x, y and z, that renders the composition charge neutral.

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