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TIVE AND SELECTIVE CATALYSTS

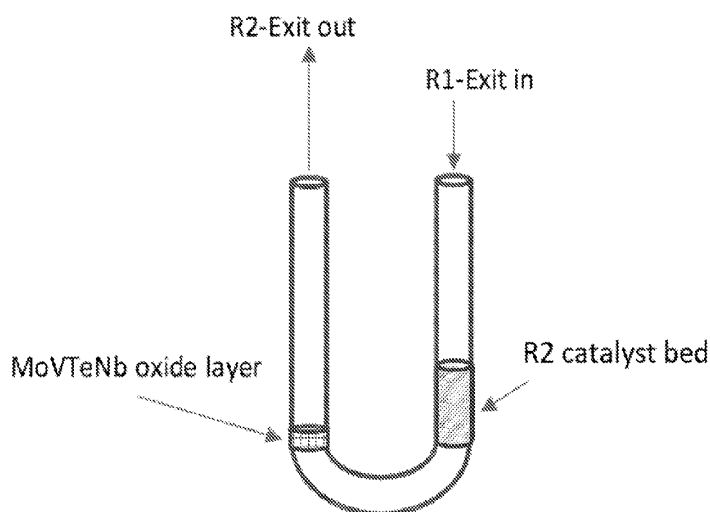


FIG. 3

(57) Abstract: A catalyst composition comprises an acrolein-oxidizing catalyst comprising a mixed metal oxide catalyst of general formula (I): $\text{MoV}_a\text{A}^1_b\text{A}^2_c\text{A}^3_d\text{O}_m$ in which A^1 comprises at least one element selected from the group consisting of W and Cu; A^2 comprises at least one element selected from the group consisting of Sb, Fe, and Nb; A^3 comprises at least one element selected from the group consisting of Y, Ti, Zr, Hf, Ta, Cr, Mn, Re, Ru, Co, Rh, Ir, Ni, Pd, Pt, Ag, Au, Zn, B, Al, Ga, In, Ge, Sn, Si, Te, Pb, P, As, Bi, Se, rare earth elements, alkaline elements, and alkaline earth elements; a ranges from 0.01 to 1.0; b ranges from 0.01 to 1.5; c ranges from 0 to 1.5; d ranges from 0 to 1.0; and m is dependent on the oxidation state of the other elements. The catalyst composition further comprises a finishing catalyst comprising a mixed metal oxide catalyst of general formula (II): $\text{MoV}_w\text{Nb}_x\text{X}^1_y\text{X}^2_z\text{O}_n$ in which X^1 comprises at least one element selected from the group consisting of Te and Sb;

WO 2020/223048 A1

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X² comprises at least one element selected from the group consisting of Y, Ti, Zr, Hf, Nb, Ta, Cr, Mn, Re, Fe, Ru, Co, Rh, Ir, Ni, Pd, Pt, Ag, Au, Zn, B, Al, Ga, In, Ge, Sn, Pb, P, As, Bi, Se, rare earth elements and alkaline earth elements; w ranges from 0.01 to 1.0; x ranges from 0.01 to 1.0; y ranges from 0.01 to 1.0; z ranges from 0 to 1.0; and n is depended on the oxidation state of the other elements. The finishing catalyst does not contain W or Cu, and has an X-ray diffraction pattern showing an orthorhombic phase as the major crystal phase with main peaks with 2θ at 6.7°, 7.8°, 22.1°, and 27.2°. The acrolein-oxidizing catalyst has a different chemical composition than the finishing catalyst. A process for producing acrylic acid is also disclosed.