

Abstract**Process for the selective preparation of acetic acid**

- 5 The present invention relates to a process for the selective preparation of acetic acid from a gaseous feed comprising ethane, ethylene or mixtures thereof plus oxygen at elevated temperature, which comprises bringing the gaseous feed into contact with a catalyst comprising the elements Mo, Pd, X and Y in gram atom ratios a:b:c:d in combination with oxygen

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where the symbols X and Y have the following meanings:

- X is one or more elements selected from the group consisting of: Cr, Mn, Nb, Ta, Ti, V, Te and/or W, in particular Nb, V and W;
- 15 Y is one or more elements selected from the group consisting of: B, Al, Ga, In, Pt, Zn, Cd, Bi, Ce, Co, Cu, Rh, Ir, Au, Ag, Fe, Ru, Os, K, Rb, Cs, Mg, Ca, Sr, Ba, Zr, Hf, Ni, P, Pb, Sb, Si, Sn, Tl and U, in particular Ca, Sb, Te and Li. The present invention further provides a catalyst for the selective
- 20 preparation of acetic acid comprising the elements Mo, Pd, X and Y in the gram atom ratios a:b:c:d in combination with oxygen.