OXIDATION CATALYST PREPARATION

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims priority from provisional application serial number 61/656,785, filed June 7, 2012, which is incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION

The invention relates to a process for the preparation of a catalyst that can be employed in the production of acrylic acid from propane.

The preparation of a MoVTeNb-oxide catalyst and its use for ammoxidation of propane to acrylonitrile was disclosed by Mitsubishi Kasei Corporation in U.S. 5,049,692. About five years later, the same company disclosed the use of this catalyst in U.S. 5,380,933 for oxidation of propane to acrylic acid (AA). Since that time, many companies have filed applications for improved preparations of the catalyst, and many articles have been published on this topic in the open literature. Preparations generally consist of mixing soluble complexes of the metals in water, isolating a solid, either by drying or by treating hydrothermally, and calcining in an inert (oxygen-free) atmosphere at a temperature of about 600 °C.

U.S. 7,875,571 discloses treatment of a calcined MoVTeNb-oxide catalyst with a solution containing 0-3% of certain metal ions in water, in conjunction with separate steps of calcination, grinding, and treatment with an oxalic acid solution.

It would be desirable to have a simpler, less expensive, preparation process for such catalysts, while obtaining equivalent or better results when using a catalyst prepared by the process. A simpler process would be less prone to error.

SUMMARY ~~OF THE INVENTION~~

In a first aspect of the present disclosure, there is provided~~The invention includes such~~ a method for producing a post-treated catalyst comprising the steps of: (a) providing a starting mixed metal oxide catalyst having the empirical formula $A_aV_bN_cX_dZ_eO_f$ wherein A is at least one element selected from the group consisting of Mo and W, N is at least one element selected from the group consisting of Te and Sb, X is at least one element selected from the group consisting of Nb, Ta, Ti, Al, Zr, Cr, Mn, Fe, Ru, Co, Rh, Ni, Pt, Sb, Bi, B, In, As, Ge, Sn, Hf, Pb, P, Pm, Eu, Gd, Dy, Ho, Er, Tm, Yb and Lu, and Z is at least one element selected from the group consisting of Zn,