CLAIMS

[1] A catalyst composition for preparing acrolein or acrylic acid by dehydration of glycerin comprising at least an heteropolyacid in which protons in the heteropolyacid may be partially exchanged by at least one cation selected from elements belonging to Group 1 to Group 16 of the Periodic Table of Elements that have been deposited on a porous titania carrier.

[2] The catalyst composition of claim 1, in which porous titania carrier is covered at least partially by a compound represented by the formula (I):

$$H_a A_b [X_1 Y_c Z_d O_e] \cdot nH_2O \qquad (I)$$

in which

H is hydrogen,

A is at least than one cation selected from elements belonging to Group 1 to Group 16 of the Periodic Table of Elements except hydrogen,

X is P or Si,

Y is at least one element selected from the group comprising W、Mo、Ti、Zr、V、Nb、Ta、Cr、Mn、Fe、Co、Ni、Cu、Zn、Ga、In、Tl、Sn and Pb,

Z is at least one element selected from the group comprising W、Mo、Ti、Zr、V、Nb、Ta、Cr、Mn、Fe、Co、Ni、Cu、Zn、Ga、In、Tl、Sn and Pb,

a, b, c, d and n satisfying following ranges:

$0 \leq a < 9$

$0 \leq b \leq 9$, preferably $0 < b \leq 9$

$0 < c \leq 12$ and

$0 \leq d < 12$

$n \geq 0$

and e is a number determined by the oxidation of the elements.

[3] The catalyst composition of claim 1 or 2, in which said titania carrier comprises rutile or anatase or amorphous titanium oxide.

[4] The catalyst composition of claim 3, in which said titania carrier comprises at least 80% by weight anatase.

[5] The catalyst composition of any one of claims 1 to 4, in which said cation is at least one alkali metal cation.

[6] The catalyst composition of claim 5, in which said alkali metal is cesium.

[7] The catalyst composition of any one of claims 2 to 5, in which said compound contains at least one element selected from the group comprising W, Mo and V.

[8] A method for preparing a catalyst composition of any one of claims 1 to 7, comprising impregnating a titania carrier with a solution of at least one metal selected from elements belonging to the Group 1 to Group 16 of the Periodic Table of Elements or onium, drying and firing the resulting solid mixture, secondly impregnating the resulting solid mixture with a solution of heteropolyacid, drying, and firing the resulting solid mixture.

[9] A method for preparing a catalyst composition of any one of claims 1 to 7, comprising impregnating a titania carrier with a solution of heteropolyacid, drying and firing the resulting solid mixture, optionally secondly impregnating the resulting impregnated carrier with a solution of at least one metal selected from elements belonging to the Group 1 to Group 16 of the Periodic Table of Elements or onium, drying, and firing the resulting solid mixture.

[10] A method for preparing a catalyst composition of any one of claims 1 to 7 prepared by more than one cycle of impregnation and firing, in which each impregnation is effected with a solution of an element of group 1 to belonging to the Group 1 to Group 16 of the Periodic Table of Elements or onium or with a solution containing more than one element selected from the group comprising P, Si, W, Mo, Ti, Zr, V, Nb, Ta, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, In, Tl, Sn, Pb, and in which at least one impregnation is made with an acid precursor.

[11] The method for preparing a catalyst composition of any one of claims 8 to 10, in which one impregnation is made with a phosphotungstic acid or phosphotungstate solution.

[17] A catalyst composition for preparing acrolein or acrylic acid by dehydration of glycerin comprising at least an heteropolyacid deposited on a porous titania carrier.

~~[18] The catalyst of claim 17 for preparing acrolein or acrylic acid by dehydration of glycerin.~~

~~[19]~~[18] Use of the catalyst composition~~of~~ claim ~~18~~ 17 in a preparation of acrolein or acrylic acid by dehydration of glycerin.