Patent claims

~~1. A catalyst comprising or consisting of a support and from 5 to 20 wt.-% of a promoter, based on the total weight of the catalyst, wherein the support comprises or consists of titanium dioxide, zirconium dioxide, and/or a mixture thereof, and the promoter is an alkali metal oxide.~~

~~2. The catalyst according to claim 1, wherein at least a part of the support has a tetragonal phase.~~

~~3. The catalyst according to any of claims 1 to 2, wherein the alkali metal is sodium, potassium, cesium or rubidium.~~

~~4. The catalyst according to any of claims 1 to 3, wherein the promoter is cesium oxide.~~

~~5. The catalyst according to any of claims 1 to 4, wherein the catalyst is a full catalyst.~~

~~6. The catalyst according to any of claims 1 to 5, wherein the catalyst is a core-shell catalyst.~~

~~7. A process for the preparation of a supported catalyst according to any of claims 1 to 6, comprising the steps of~~

~~a) impregnating a support comprising or consisting of titanium dioxide, zirconium dioxide, and/or a mixture thereof with an aqueous solution comprising a soluble alkali compound,~~
~~b) drying the impregnated support obtained from step a), and~~
~~c) calcinating the dried impregnated support of step b) to provide the catalyst.~~

~~8. The process according to claim 7, wherein the steps a) to c) are repeated at least once.~~

~~9. The process according to claim 7 or 8, further comprising the step~~

~~d1) shaping the catalyst obtained from step c) to give a full catalyst.~~

~~10. The process according to claim 7 or 8, further comprising the step~~

~~d2) applying the catalyst obtained from step c) to a core to provide a core-shell catalyst.~~

~~11.~~1. A process for the preparation of an alkyl mercaptan, wherein an alkyl alcohol is reacted with hydrogen sulfide in the presence of ~~the catalyst according to any of claims 1 to 6 or the catalyst obtained by the process according to any of claims 7 to 10~~a catalyst comprising or

consisting of a support and from 5 to 20 wt.-% of a promoter, based on the total weight of the catalyst, wherein the support comprises or consists of titanium dioxide, zirconium dioxide, and/or a mixture thereof, and the promoter is an alkali metal oxide.

2. The process according to claim 1, wherein at least a part of the support of the catalyst has a tetragonal phase.

3. The process according to claim 1 or 2, wherein the alkali metal of the catalyst is sodium, potassium, cesium or rubidium.

4. The process according to any of claims 1 to 3, wherein the promoter of the catalyst is cesium oxide.

5. The process according to any of claims 1 to 4, wherein the catalyst is a full catalyst.

6. The process according to any of claims 1 to 5, wherein the catalyst is a core-shell catalyst.

7. The process according to any of claims 1 to 6, wherein the catalyst is obtained by a process comprising the steps of

a) impregnating a support comprising or consisting of titanium dioxide, zirconium dioxide, and/or a mixture thereof with an aqueous solution comprising a soluble alkali compound,

b) drying the impregnated support obtained from step a), and

c) calcinating the dried impregnated support of step b) to provide the catalyst.

8. The process according to claim 7, wherein the steps a) to c) of the process by which the catalyst is obtained are repeated at least once.

9. The process according to claim 7 or 8, wherein the process by which the catalyst is obtained further comprises the step

d1) shaping the catalyst obtained from step c) to give a full catalyst.

10. The process according to claim 7 or 8, wherein the process by which the catalyst is obtained further comprises the step

d2) applying the catalyst obtained from step c) to a core to provide a core-shell catalyst.

~~12.~~11. The process according to any of claims ~~11~~1 to 10, wherein the alkyl alcohol to be reacted is methanol and the alkyl mercaptan to be prepared is methyl mercaptan.