Patent claims

1. A process for the preparation of an alkyl mercaptan, wherein an alkyl alcohol is reacted with hydrogen sulfide in the presence of 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.

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