promoter. The CO_2/MeSH selectivity ratios are comprised between 0.60 and 0.77 measured at 300°C.

From the teaching of these documents it has been observed that combining catalysts with specific structures, promoters and supports, each being carefully selected, means that interesting selectivity ratios can be achieved.

There is a current need for a catalyst that is simply synthesized and leads to very good selectivity. This technical problem has been resolved by a molybdenum- and potassium- based catalyst supported by hydroxyapatite.

Summary

In one aspect of the present disclosure, there is provided a catalyst comprising a molybdenum- and potassium-based active component, chosen from compounds based on Mo-S-K, compounds based on Mo-O-K, and their mixtures, and a hydroxyapatite-based support.

In another aspect of the present disclosure, there is provided a preparation process for the catalyst as defined herein, characterized in that it comprises the following steps:

- preparing the precursor for the active phase
- preparing the support, and
- dry impregnating the support with the active phase precursor.

In a further aspect of the present disclosure, there is provided a production process for methyl mercaptan in a catalytic process by reacting carbon oxide, sulfur and/or hydrogen sulfide and hydrogen, comprising the use of a catalyst as defined herein.

In another aspect of the present disclosure, there is provided a use of hydroxyapatite as a support for preparing the catalyst for producing methyl mercaptan.

CLAIMS

1. A catalyst comprising a molybdenum- and potassium-based active component, chosen from compounds based on Mo-S-K, compounds based on Mo-O-K, and their mixtures, and a hydroxyapatite-based support.

2. The catalyst as claimed in claim 1, characterized in that the catalyst support is hydroxyapatite having stoichiometric formula $Ca_{10}(PO_4)_6(OH)_2$.

~~3. The catalyst as claimed in claim 1 or 2, characterized in that the molybdenum- and potassium-based active component is chosen from compounds based on Mo-S-K, compounds based on Mo-O-K, and their mixtures.~~

~~4~~3. The catalyst as claimed in claim ~~3~~1 or 2, characterized in that the precursor for the Mo-S-K based active component has structure K_2MoS_4.

~~5~~4. The catalyst as claimed in claim ~~4~~3, characterized in that the weight ratio for the catalyst according to the invention is

$K_2MoS_4/Ca_{10}(PO_4)_6(OH)_2$= 31.3/100

~~6~~5. The catalyst as claimed in claim ~~3~~1 or 2, characterized in that the precursor for the Mo-O-K based active component has structure K_2MoO_4.

~~7~~6. The catalyst as claimed in claim ~~6~~5, characterized in that the weight ratio for the catalyst according to the invention is:

$K_2MoO_4/Ca_{10}(PO_4)_6(OH)_2$= 50.7/100

~~8~~7. A preparation process for the catalyst as defined in any of claims 1 to ~~7~~6, characterized in that it comprises the following steps:

- preparing the precursor for the active phase
- preparing the support, and
- dry impregnating the support with the active phase precursor.

~~9~~8. A production process for methyl mercaptan in a catalytic process by reacting carbon oxide, sulfur and/or hydrogen sulfide and hydrogen, comprising the use of a catalyst as defined in any of claims 1 to ~~7~~6.

~~10~~9. The use of hydroxyapatite as a support for preparing the catalyst for producing methyl mercaptan.