1. Use of a mixture of fresh and regenerated catalytic compositions defined by the general empirical formula (I):

$$A_aD_bSb_cSn_dTe_eY_fO_x \quad (I)$$

wherein

A represents one or more elements selected from copper (Cu), vanadium (V), molybdenum (Mo) and/or tungsten (W),

D represents one or more activator elements selected from cobalt (Co) and/or bismuth (Bi),

Y is an alkali metal,

a is 0.001 to 10, **b** is 0 to 10,

c is 10, **d** is 0.1 to 10,

e is 0.001 to 10, **f** is 0 to 0.01,

$a + b + d + e \leq 11$; and **x** represents the number of oxygen atoms necessary to satisfy the valency requirements of the other elements present, as a catalyst in the oxidative reactions of unsaturated or saturated hydrocarbons, wherein the regenerated catalytic composition has been regenerated by impregnation with concentrated aqueous ammonia until saturation, drying at a temperature of up to 150°C and calcining at temperatures of from 550 to 950°C, characterised in that the regenerated and fresh catalytic compositions are mixed in weight ratios of 95:5 to 70:30.

2. Use as in claim 1, characterised in that a mixture of fresh and regenerated catalytic compositions is used having the same chemical constitution.

3. Use as in claim 1 or 2, characterised in that the catalytic compositions are supported by an inert refractory material.

4. Use as in claim 3, characterised in that the catalytic compositions are supported by alumina.

5. Use as in any one of the preceding claims, characterised in that the mixture of the catalytic compositions is used as a catalyst in the ammoxidation of propene to acrylonitrile.

6. Use as in claim 5, characterised in that the mixture of the catalytic composition has the formula

$$Cu_{1.06}Mo_{0.19}Sb_{10}Sn_{3.3}Te_{4.7}O_x,$$

x having the meaning as in claim 1.

7. Use according to any one of claims 1-4, characterised in that the mixture of the catalytic composition is used as a catalyst in the dehydrogenation of 1-butene to butadiene.

8. Use according to claim 7, characterised in that the mixture of the catalytic composition has the formula

$$Cu_{2.07}W_{0.28}K_{0.01}Te_{0.57}Sb_{10}Sn_{1.9}O_x,$$

x having the meaning as in claim 1 on an Al_2O_3 carrier.

Reference is made to your communication in application no..

Please find enclosed a new set of claims to substitute the claims currently on file.

Claim 1 now relates to the use of a mixture of fresh and regenerated catalysts in the oxidative reactions of unsaturated or saturated hydrocarbons.

Basis for this new claim 1 can be found in a combination of original claims 1, 4, and 5 and page 6, lines 19-21 of the description.

New claim 2 is based on page 6, lines 21-23 of the description.

New claim 3 finds its basis in original claim 2.

New claim 4 is based on page 5, lines 12-16.

New claim 5 is based on page 1, first paragraph, as well as new claim 7.

Claim 6 finds its basis in example V.

Claim 8 finds its basis in table I.

As regards novelty and inventive step, our comments are as follows.

The Examining Division is correct in observing that catalyst I, II and III are known from documents III, V and IV respectively.

Document IV discloses catalyst III, a regeneration procedure as in the present application and its use in reactions: butene → butadiene and the ammoxidation of propene.

Document V discloses catalyst II, a regeneration process as in the present application and its use in ammoxidation.

Document VII discloses catalyst I, a different regeneration process and its use in the reaction butene → butadiene.

However, none of the above cited documents disclose the use of a mixture of regenerated and fresh catalysts; let alone in a specific ratio.

Accordingly, new claim 1 is novel over any one of documents III, IV and V.

As regards inventive step, please note that it has now been found that the admixture of regenerated and fresh catalysts gives rise to remarkably good results, in particular, more than could be expected of a mere combination of the regenerated and the fresh catalyst. In this respect reference is made to page 6, lines 19-21 of the present application. Further reference is made to table I, catalysts I, IV and V.

It can be seen that the service life of fresh catalyst I is 1[illegible] days, of regenerated catalyst IV is 106 days and the combination in a weight ratio regenerated: fresh 9:1 was 108 days as well.

Further reference is made to table 2 were similar effects can be seen from a comparison of catalysts I, IV and V.

When a problem-solution approach is adopted, the closest prior art is either document IV or V as they relate to the same use, and disclose the same regeneration procedure.

The problem to be overcome is how to use regenerated catalyst in such a way that service life and yield are hardly or not at all different from fresh catalyst.

It is submitted that a solution to this problem cannot be found in any one of the further documents and it is concluded that the present claim 1 is inventive.

The remaining claims are novel and inventive by virtue of their dependency on claim 1.

Further amendments to the description will be made when agreement has been reached on the claims.

Yours faithfully,

Encl.: Claims (3x)

Notes to the Examiner

It was felt that in view of page 6, 2nd paragraph, it was permissible to extend the teaching of the examples to the general formula and was not necessarily restricted to catalyst I only.

Notes to the Examiner

Divisional I & II:

I considered claims relating to the use of catalysts of the broad general formula with A being Cu and Mo for the ammoxidation of propene to acetonitrile but considered these claims not allowable for the following reasons:

a) Maybe this is too much interpretation, not sure that the advantageous effect is due to the presence of Cu and Mo instead of Cu and W in document V.

b) I would then defend inventive step on basis of exampl whilst having a much broader claim.

In fact, the same holds true for the combination with A being Cu and W for the reaction 1-butene → butadiene.

Nevertheless, I think that after consultation with inventor, I would in practice try to defend the broader claims because the present claims are fairly useless as regards scope.

I propose these claims as possible divisionals as they do not form unity with main set.

Note to Examiner

Divisionals are inventive as well.
Closest prior art = document covering same use.
Not obvious to use this, catalysts would/could test.

Person skilled in the art could combine teachings of documents regarding amminooxidation and butene dehydrogenation but not would.

Accordingly inventive.

Divisional I

Use of a catalytic composition of the formula

$$Cu_{1.06}Mo_{0.19}Sb_{10}Sn_{3.3}Te_{4.7}O_x$$

x represents the number of oxygen atoms necessary to satisfy the valency requirements of the other elements present, in a process for the ammoxidation of propene to acrylonitrile.

Divisional II

Use of a catalytic composition of the formula

$$Cu_{2.07}W_{0.28}K_{0.01}Te_{0.57}Sb_{10}Sn_{1.9}O_x$$

x represents the number of oxygen atoms necessary to satisfy the valency requirements of the other elements present on an Al_2O_3 carrier, in a process for the preparation of butadiene from 1-butene, in the presence of an oxidizing agent.