Claims

1. Process for producing catalysts based on boron-containing silicates having a zeolitic structure, which comprises the following steps:

   a) provision of an aqueous suspension containing at least one boron-containing silicate having a zeolitic structure,
   b) addition of acid to set a pH in the range from 1 to 5,
   c) stirring of the suspension,
   d) isolation of the solid obtained,
   e) optionally washing of the solid,
   f) calcination of the solid.

2. Process according to Claim 1, characterized in that a boron-containing silicate having a zeolitic structure of the MFI type is used.

3. Process according to Claim 1 or 2, characterized in that the silicate present in the suspension has a molar ratio of SiO_2 / B_2O_3 in the range from 2 to 4, with preference being given to the said ratio being in the range from 2.3 to 3.7.

4. Process according to Claim 1, 2 or 3, characterized in that the silicate present in the suspension has an aluminium content of less than 0.1% by weight and is particularly preferably free of aluminium.

5. Process according to any of Claims 1 to 4, characterized in that the silicate present in the suspension has, at least after addition of the acid, a boron content of less than 1% by weight, with particular preference being given to the boron content being less than 0.5% by weight.

6. Process according to at least one of Claims 1 to 5, characterized in that the silicate in step a) has a surface area measured by the BET method in the range from 300 m^2/g to 500 m^2/g, preferably from 330 to 470 m^2/g and particularly preferably from 370 to 430 m^2/g.

7. Process according to at least one of Claims 1 to 6, characterized in that the setting of the pH in step b) is effected by addition of hydrochloric acid.

8. Process according to at least one of Claims 1 to 6, characterized in that the setting of the pH in step b) is effected by addition of phosphoric acid.

9. Process according to at least one of Claims 1 to 8, characterized in that the stirring of the suspension in step c) is carried out at not more than 80°C.

10. Process according to Claim 8, characterized in that the stirring of the suspension in step c) is carried out at not more than 25°C.

11. Process according to at least one of Claims 1 to 10, characterized in that the stirring of the suspension in step c) is carried out for a period of at least 24 hours.

12. Process according to at least one of Claims 1 to 11, characterized in that the isolation of the solid in step d) is carried out by vacuum filtration or by superatmospheric pressure filtration.

13. Process according to at least one of Claims 1 to 12, characterized in that the solid is washed with water in step e).

14. Process according to at least one of Claims 1 to 13, characterized in that the calcination of the solid in step f) is carried out at a temperature of not more than

500°C, with preference being given to the temperature being not more than 350°C.

15. Process according to at least one of Claims 1 to 14, characterized in that the calcination of the solid in step f) is carried out in a nitrogen-containing atmosphere, preferably in a stream of pure nitrogen or in a stream of air.

16. Process according to at least one of Claims 1 to 15, characterized in that the solid obtained in step f) is washed with water and step f) is subsequently repeated.

17. Process according to at least one of Claims 1 to 16, characterized in that the calcined solid is treated with methanol.

18. Catalyst comprising a boron-containing silicate which has a zeolitic structure and can be obtained by a process according to at least one of Claims 1 to 17.

19. Catalyst according to Claim 18, wherein the zeolitic structure is of the MFI type.

20. Catalyst according to Claim 18 or 19, characterized in that its proportion of boron is less than 1% by weight, with preference being given to the said proportion being less than 0.5% by weight.

Claims

1. Catalyst comprising a boron-containing silicate which has a zeolitic structure and can be obtained by a process which comprises the following steps:

a) provision of an aqueous suspension containing at least one boron-containing silicate having a zeolitic structure, wherein the silicate present in the suspension has an aluminium content of less than 0.1% by weight,
b) addition of acid to set a pH in the range from 1 to 5,
c) stirring of the suspension,
d) isolation of the solid obtained,
e) optionally washing of the solid,
f) calcination of the solid, whereby the calcination of the solid is carried out at a temperature being not more than 350°C

characterized in that the boron-containing silicate having a zeolitic structure contains aluminium at most in the form of impurity or as trace constituent,, whereby the aluminium content is below 0.1% by weight .

2. Catalyst according to Claim 1, wherein the zeolitic structure is of the MFI type.

3. Catalyst according to Claim 1 or 2, characterized in that the silicate present in the suspension has a molar ratio of SiO_2 / B_2O_3 in the range from 2 to 4, with preference being given to the said ratio being in the range from 2.3 to 3.7.

4. Catalyst according to any of Claims 1 to 3, characterized in that the silicate present in the suspension has, at least after addition of the acid, a boron content of less than 1% by weight, with particular preference being given to the boron content being less than 0.5% by weight.

5. Catalyst according to at least one of Claims 1 to 4, characterized in that the silicate in step a) has a surface area measured by the BET method in the range from 300 m^2/g to 500 m^2/g, preferably from 330 to 470 m^2/g and particularly preferably from 370 to 430 m^2/g.

6. Catalyst according to at least one of Claims 1 to 5, characterized in that the setting of the pH in step b) is effected by addition of hydrochloric acid.

7. Catalyst according to at least one of Claims 1 to 5, characterized in that the setting of the pH in step b) is effected by addition of phosphoric acid.

8. Catalyst according to at least one of Claims 1 to 7, characterized in that the stirring of the suspension in step c) is carried out at not more than 80°C.

9. Catalyst according to Claim 8, characterized in that the stirring of the suspension in step c) is carried out at not more than 25°C.

10. Catalyst according to at least one of Claims 1 to 9, characterized in that the stirring of the suspension in step c) is carried out for a period of at least 24 hours.

11. Catalyst according to at least one of Claims 1 to 10, characterized in that the isolation of the solid in step d) is carried out by vacuum filtration or by superatmospheric pressure filtration.

12. Catalyst according to at least one of Claims 1 to 11, characterized in that the solid is washed with water in step e).

13. Catalyst according to at least one of Claims 1 to 12, characterized in that the calcination of the solid in step f) is carried out in a nitrogen-containing atmosphere, preferably in a stream of pure nitrogen or in a stream of air.

14. Catalyst according to at least one of Claims 1 to 13, characterized in that the solid obtained in step f) is washed with water and step f) is subsequently repeated.

15. Catalyst according to at least one of Claims 1 to 14, characterized in that the calcined solid is treated with methanol.