Claims

1. A process for preparing a nickel aluminosilicate catalyst having a silicon/aluminium ratio of 8 to 100 and a nickel content of 0.5% to 15% by weight, wherein the process comprises:
    a. preparing a precipitate suspension by dissolving at least two templates A and B, at least one aluminium source, at least one nickel source and at least one silicon source in a water-based solvent, wherein the individual components are to be selected such that the prepared suspension has a pH of more than 8.5;
    b. adjusting the pH by addition of an inorganic acid to a pH in the range from 7.5 to 12;
    c. precipitating the catalyst composition out of the precipitate suspension from step b in a pressure-tight vessel at a temperature of 100 to 180°C;
    d. removing the catalyst composition precipitated in step c, to obtain a precipitated catalyst composition;
    e. drying and calcining the precipitated catalyst composition, to obtain a calcined catalyst composition;
    f. admixing the calcined catalyst composition with a solution containing ammonium ions;
    g. drying and calcining the catalyst composition that has been admixed with the solution in step f, to obtain said nickel aluminosilicate catalyst having a silicon/aluminium ratio of 8 to 100 and a nickel content of 0.5% to 15% by weight.

2. The process according to claim 1, wherein the aluminium source is at least one selected from the group consisting of sodium aluminate, aluminium sulfate, aluminium nitrate and mixtures thereof.

3. The process according to claim 1, wherein the nickel source is at least one selected from the group consisting of nickel nitrate in anhydrous or hydrated form, nickel halides and nickel sulfate.

4. The process according to claim 1, wherein the silicon source is at least one selected from the group consisting of colloidal silicon dioxide, orthosilicates with alkali metal cations, and tetraalkyl orthosilicates.

5. The process according to claim 1, wherein template A is selected from the group consisting of primary amines having 2 to 4 carbon atoms, diamines having 2 to 4 carbon atoms, quaternary ammonium compounds with alkyl groups having 2 to 4 carbon atoms in hydroxidic or halide form, and mixtures thereof.

6. The process according to claim 1, wherein template B used is an ammonium compound having four alkyl groups, wherein at least one of the alkyl groups has an elevated chain length having 10 to 20 carbon atoms.

7. The process according to claim 1, wherein the catalyst has a silicon/aluminium ratio of 20 to 90.

8. The process according to claim 1, wherein the catalyst has a silicon/aluminium ratio of 30 to 80.

9. The process according to claim 1, wherein the precipitate suspension prepared in step a contains a total amount of aluminium source, nickel source and silicon source of 5% to 30% by weight.

10. The process according to claim 1, wherein the total amount of templates A and B in the precipitate suspension prepared in step a is between 5% and 30% by weight.

11. The process according to claim 1, wherein the precipitate suspension prepared in step a contains the water-based solvent in an amount of 30% to 80% by weight.

12. The process according to claim 1, wherein the precipitating of the catalyst suspension out of the precipitate suspension in step c is effected under an autogenous pressure of up to 15 bar.