Claims

1. Catalyst comprising nickel on a solid silica support, wherein said catalyst has a specific pore volume of at least 0.4 ml/g, a TPR peak maximum within the range of 360-420 °C and wherein said catalyst comprises 20-48 wt.%, of nickel, preferably 30-45 wt.%, calculated as metallic nickel on the weight of the calcined catalyst.

2. Catalyst according to any of the preceding claims, wherein > 90 wt.% of the nickel is present in the metallic form.

3. Catalyst according to any of the preceding claims, wherein said catalyst has a BET surface area between 160 to 300 m^2/g, preferably between 180 to 280 m^2/g, and more preferably between 200-280 m^2/g.

4. Catalyst according to any of the previous claims, resulting in an IV-70 of less than 35 minutes.

5. Catalyst according to any of the preceding claims, wherein said catalyst is in the form of a shaped catalyst, preferably an extrudate or a tablet.

~~5~~6. Droplet comprising a reduced catalyst according to claims 1-~~4~~5 coated in a fatty substance, wherein said droplet comprises about 9-13 wt.% nickel, calculated as metallic nickel, about 9-26 wt.% SiO_2 and the balance of the droplet is the fatty substance.

~~6~~7. Process for preparing a catalyst according any of the claims 1-45, wherein

- a nickel source and a solid silica support are mixed in a liquid solution and the nickel is deposited by precipitation onto the solid silica support to form a catalyst precursor at a precipitation temperature of < 70 °C, preferably < 65 °C and more preferably ≤ 60 °C,

- the catalyst precursor is brought to a temperature of ≤ 50 °C, optionally by cooling,

- the catalyst precursor is isolated from the solution, and

the catalyst precursor is activated to form the catalyst.

78. Process for preparing a catalyst according to claims 1-54, wherein

- a nickel source and a solid silica support are mixed in a liquid solution and the nickel is deposited by precipitation onto the solid silica support to form a catalyst precursor at a temperature ≤ 60 °C,

- the catalyst precursor is brought to a temperature of ≤ 50 °C, optionally by cooling,

the catalyst precursor is isolated from the solution,

- the catalyst precursor is activated to form the catalyst,

and wherein the pore structure of the solid silica support is substantially maintained, as reflected in the decrease in the pore volume (in ml/g) from silica support to catalyst precursor, which is less than 80%, preferably less than 75%.

89. Process according to claims 67-78, wherein the catalyst precursor is aged prior to bringing the temperature ≤ 50 °C according to the expression $\tau << 10030 \times e^{(-0.135 \times \xi)}$, wherein τ is the aging time in hours and ξ is the aging temperature in °C.

910. Process according to claims 67-89, wherein the precipitation is performed at a pH between 7.0-8.0.

1011. Process according to claims 67-910, wherein the catalyst precursor is activated by reduction with hydrogen at a temperature between 350-450 °C, and preferably the catalyst precursor is optionally calcined before being reduced.

1112. Catalyst, which is obtainable by the process according to claims 67-1011.

1213. Process for the hydrogenation of an unsaturated fatty material, preferably an oil or a fatty acid, wherein said unsaturated fatty material is contacted with hydrogen in the presence of the catalyst according to claims 1-4-5 or 1112.

~~13~~14. Process according to the previous claim, wherein the hydrogenation is carried out in a fixed bed or slurry comprising said catalyst.

~~14~~15. Use of a catalyst according to claims 1-~~6~~5 or ~~11~~12, as a catalyst in a fixed bed process selected from the group consisting of dearomatization, desulfurization and hydrogenation of petrochemical feedstocks and functional groups including aldehydes and nitro groups.

16. A fixed bed process comprising using a catalyst according to claims 1-5 or 12, wherein said fixed bed process is selected from the group consisting of dearomatization, desulfurization and hydrogenation of petrochemical feedstocks and functional groups including aldehydes and nitro groups.