

WHAT IS CLAIMED IS:

1. A process for preparing a modified zeolite Y which process comprises subjecting zeolite Y having a silica to alumina molar ratio of at least 10 to calcination at a temperature of from 700 °C to 1000 °C wherein (i) the steam partial pressure is at most 0.06 bar at a temperature of from greater than 700 °C to less than 800 °C, (ii) the steam partial pressure is at most 0.08 bar at a temperature of from greater than 800 °C to less than 850 °C, (iii) the steam partial pressure is at least 0.03 bar at a temperature of from greater than 850 °C to less than 900 °C, and (iv) the steam partial pressure is at least 0.05 bar at a temperature of from greater than 900 °C to less than 950 °C and (v) the steam partial pressure is at least 0.07 bar at a temperature of from greater than 950 °C to less than 1000 °C.
2. A process according to claim 1, in which process the zeolite Y has a silica to alumina molar ratio of more than 10.
3. A process according to claim 2, in which process the calcination is carried out during a time of from 20 minutes to 5 hours.
4. A process according to claim 3, in which process the zeolite Y before calcination has a bulk silica to alumina molar ratio of greater than 13, a unit cell size in the range of from 24.10 Å to 24.40 Å, and a surface area of at least 875 m²/g.
5. A zeolite Y obtainable by a process according to any one of claims 1 to 4.

6. A zeolite Y according to claim 5, having a silica to alumina molar ratio of at least 10, the infrared spectrum of which has a peak at 3700 cm^{-1} but substantially no peak at 3670 cm^{-1} .

7. A zeolite Y according to claim 5, having a silica to alumina molar ratio of at least 10, which zeolite Y has an acidity as measured by exchange with perdeuterated benzene of at most 20 micromole/gram.

8. A zeolite Y according to claim 7, which zeolite Y has an acidity as measured by exchange with perdeuterated benzene of at most 10 micromole/gram.

9. A method of using a zeolite, wherein a modified zeolite Y according to any one of claims 1-78 is used as an adsorbent.

10. A process according to claim 1, wherein the modified zeolite Y has a silica to alumina molar ratio of at least 10, the infrared spectrum of which has a peak at 3700 cm^{-1} but substantially no peak at 3670 cm^{-1} .

11. A process according to claim 1, in which process the zeolite Y has an acidity as measured by exchange with perdeuterated benzene of at most 20 micromole/gram.

12. A process according to claim 11, in which process the zeolite Y has an acidity as measured by exchange with perdeuterated benzene of at most 10 micromole/gram.