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(54) Title: NOVEL METHOD FOR MAKING MOLECULAR SIEVES AND NOVEL MOLECULAR SIEVE COMPOSITIONS ✓

(57) Abstract

This invention relates to the synthesis of large pore composite molecular sieves and the synthetic large pore composite molecular sieves so produced. The molecular sieves of the invention have the same general utilities of the comparable molecular sieves of the prior art but have been found to be superior catalysts and absorbents. This invention relates to a hydrothermal synthesis of large pore molecular sieves from nutrients, at least one of which contains an amorphous framework-structure, and which framework-structure is essentially retained in the synthetic molecular sieve. This invention stems from a discovery that the intrinsic porosity characteristics of a nutrient that possesses an amorphous cation oxide-framework can be substantially retained in the final molecular sieve containing product formed by a hydrothermal process by carefully controlling the conditions under which the hydrothermal process is conducted. For example, the invention contemplates retention of the particle size in a final molecular sieve-containing product that corresponds with that of an amorphous cation oxide-framework nutrient used in its manufacture. This invention drives the selection of process conditions to achieve one or more of macro and meso porosity ("large pore composite porosity") in the final molecular sieve product as a direct product of the hydrothermal reaction producing the molecular sieve. The invention allows the production of a molecular sieve that is *in situ* incorporated in the framework morphology of a solid cation oxide-framework used in the molecular sieve's manufacture.