[0022] In one embodiment, the reactor has a capacity of at least 5 liters, such as at least 20 liters, for example at least 200 liters.

[0023] In one embodiment, the mixer comprises at least one blade located on a shaft rotatable about an axis oriented at no more than 10° from horizontal.

[0024] Conveniently, the molecular sieve material comprises ZSM-5 or MCM-41.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] Figures 1 and 2 show a 5 gallon commercial pilot-scale horizontal plough shear mixer/dryer/reactor having a top mount charge opening used in the synthesis process of the Examples.

[0026] Figure 3 is an X-ray diffraction (XRD) pattern of the as-synthesized ZSM-5 material from Example 1.

[0027] Figure 4 is a scanning electron micrograph (SEM) of the as-synthesized ZSM-5 material of Example 1.

[0028] Figure 5 is an X-ray diffraction (XRD) pattern of the as-synthesized ZSM-5 material from Example 2.

[0029] Figure 6 is a scanning electron micrograph (SEM) of the as-synthesized ZSM-5 material of Example 2.

[0030] Figure 7 is an X-ray diffraction (XRD) pattern of the as-synthesized Si-MCM-41 material from Example 3.

[0031] Figure 8 is ~~a scanning electron micrograph (SEM)~~ an X-ray diffraction (XRD) pattern of the as-synthesized Al-MCM-41 material of Example ~~6~~ 5.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0032] Described herein is a process for producing microporous and mesoporous molecular sieve materials in which an aqueous synthesis mixture having a high solids content of at least 20 wt% is produced and crystallized under agitation in the same reactor equipped with a high-intensity mixer capable of operating at a Froude number of at least 1, such as from 1 to 12, for example from 2 to 10. In this process, the Froude number of an impeller of a high-speed mixer is used as a measure of the resistance of the impeller moving through a fluid medium. In this respect, the Froude number (Fr) of a mixer having an impeller of diameter (d) in meters and rotating at N revolutions per second is defined by the following equation:

$$Fr = N^2d/g$$