MEL Nanosized TBA-Silicalite-2 Si(100)

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Type Material: [$Si_{96}O_{192}$]

Method: S. Mintova, N. Petkov, K. Karaghiosoff, T. Bein [1]

Batch Composition: SiO_2 : 0.15 TBA_2O : 4.0 EtOH : 17 H_2O

Source Materials

tetraethoxysilane (TEOS) (98%, Aldrich)
tetrabutylammonium hydroxide TBAOH (40%, Aldrich)
distilled water

Batch Preparation

(1) [20 g TEOS + 18.3 g TBAOH], stirr in a plastic flask
(2) [(1) + 18.68 g H_2O], mix under vigourous stirring in a plastic flask[a]
(3) Aging (hydrolization of silica) on orbital shaker at RT for 45 hours

Crystallization

Vessel: polypropylene (PP) bottles
Temperature: 90 °C
Time: 68 h

Product Recovery

(1) Centrifugation (2000 rpm, 1h) and redispersion in water, washed until pH = 8
(2) Freeze-drying

Product Characterization

DLS: monodisperse particles with size of 90-100 nm
XRD: MEL
SEM: spheroidal crystals

Reference

[1] S. Mintova, N. Petkov, K. Karaghiosoff, T. Bein, Microporous Mesoporous Mater. 50 (2001) 121

Notes

a. Clear solution is obtained