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**Abstract:** The effect of several desilication experimental parameters (base concentration, temperature and time) on the characteristics of MOR zeolite was studied. The samples were characterized by X-ray diffraction, Al-27 and Si-29 MAS-NMR, chemical analysis, and FTIR (framework vibration region). The textural characterization was made by N<sub>2</sub> adsorption and the acidity was evaluated by pyridine adsorption followed by FTIR and by the catalytic model reaction of n-heptane cracking. The alkaline treatments promoted the Si extraction from the zeolite framework, without considerable loss of crystallinity and, as it was envisaged, an important increase of the mesoporous structure was attained. A linear correlation between the number of framework Si per unit cell. N-Si and the asymmetric stretching wavenumber,  $\nu(i)$ , was observed. The acidity characterization shows that the desilicated samples exhibit practically the same acid properties than the parent HMOR zeolite. The optimum desilication conditions were those used to obtain sample M/0.2/85/2, i.e., sample treated with 0.2 M NaOH solution at 85 degrees C for 2 h. (C) 2010 Elsevier Inc. All rights reserved.

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