

Investigation of parameters affecting zeolite NaA crystal size and morphology

I - The influence of reactants composition ratios on zeolite A synthesis

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Abstract : Crystal size and morphology of zeolite NaA have an important role in its specific use in the industries. Thus, investigation of parameters which influence crystal size and morphology of this compound during the synthesis is very important. Parameters such as intensity of mixing, temperature and aging time of the gel preparation, crystallization temperature and composition ratios are important in this case. In this study, the influences of $\frac{\text{SiO}_2}{\text{Al}_2\text{O}_3}$, $\frac{\text{Na}_2\text{O}}{\text{Al}_2\text{O}_3}$ and $\frac{\text{H}_2\text{O}}{\text{Al}_2\text{O}_3}$ ratios and impurity in the gel composition on zeolite NaA crystal size and morphology are investigated. Characterization techniques such as X-ray Diffraction (XRD) and Scanning Electron Microscopy (SEM) have been used for phase identification, particle size and morphology of crystals throughout this work.