

Investigation of Modified Microporous Materials for Environmental Depollution

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Abstract : Today, environmental pollution is a major concern worldwide, threatening human health. Various techniques have been used, including degradation, filtration, advanced oxidation processes, ion exchange, membrane processes, and adsorption. The latter is one of the most suitable methods, using highly efficient materials. In this study, NaX zeolite was modified with Cu or Ni at various rates. Following ion exchange, the samples were characterized by XRD, BET and SEM/EDX. After characterization, the exchanged zeolites were used for adsorption of various pollutants as CO₂. Different thermodynamic parameters were studied such as Q_{st}. XRD results show that the most intense peaks characteristic of 13X persist after the exchange reaction for all samples. The SEM images of our samples have uniform and regular crystal shapes. The results show that ion exchange with Cu or Ni affect the textural properties of X zeolites and prove that the exchange zeolites can be used as an adsorbent for depollution.

Keywords : X zeolites (NaX), ion exchange, characterization, adsorption

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