Copper Ion-exchanged studies on Synthesized Zeolite Na-LSX and Na-A

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Zeolites are used for many purposes like ion exchange and adsorbent for separation and pre-concentration of trace elements. For example; zeolites can be used as ion-exchangers to remove cationic species from aqueous solutions by replacing them by sodium cations. The Si/Al ratio is important in zeolites for the acidity of the framework, ion exchange capacity and window size of crystalline structure [1].

In this study, low Si/Al ratio zeolite Na-LSX and zeolite Na-A on powder form, were synthesized at laboratory by hydrothermal methods [2]. For copper (II) ion exchanged process batch method was performed. The (scanning electronic microscopy) SEM, (X-Ray Diffraction) XRD and (Fourier transform infrared) FT-IR was used to determine the structural characterization of synthesized and copper exchanged zeolites.

The characterization results are showed that the synthesized zeolites have low Si/Al ratio. The Si/Al ratio is 1.0 for Na-A and 1.18 for Na-LSX. The as synthesized zeolites are homogeneously crystallized. After copper ion-exchanged process zeolites had a light blue colour and all characterization results indicated that the zeolites lost their crystallinity and that they are agglomerated. The ionic exchange capacity of the Na-LSX and Na-A are measured by AAS (Atomic Absorption Spectroscopy).

References
