World Academy of Science, Engineering and Technology International Journal of Materials and Metallurgical Engineering Vol:17, No:12, 2023

Investigation of Modified Microporous Materials for Environmental Depollution

Authors: Souhila Bendenia, Chahrazed Bendenia, Hanaa Merad-Dib, Sarra Merabet, Samia Moulebhar, Sid Ahmed Khantar **Abstract:** Today, environmental pollution is a major concernworldwide, threateninghumanhealth. Various techniques have been used, includingdegradation, filtration, advancedoxidationprocesses, ion exchange, membrane processes, and adsorption. The latter is one of the mostsuitablemethods, usinghighly 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 Qst. 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 exhange 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

Conference Title: ICECME 2023: International Conference on Engineering Chemistry and Materials Engineering

Conference Location: Paris, France Conference Dates: December 25-26, 2023