

EPR of O_2^- Radicals in the Zeolites NH_4NaY and NH_4CaA

F. Köksal and F. Uçun^a

Physics Department, Faculty of Arts and Sciences, Ondokuz Mayıs University, Samsun, Turkey

^a Department of Physics, Faculty of Arts and Sciences, Süleyman Demirel University, Isparta, Turkey

Z. Naturforsch. **53 a**, 951–954 (1998); received October 28, 1998

Activated and non-activated states of the zeolites NH_4NaY and NH_4CaA , and their NH_4^+ forms were prepared with an $(\text{NH}_4)_2\text{SO}_4$ solution and were investigated by EPR after γ -irradiation. The formed radicals were attributed to O_2^- supposed to be trapped near a trigonally coordinated framework of ^{27}Al ($I = 5/2$). Anisotropic O_2^- spectra were observed, consisting of hyperfine structure due to the ^{27}Al framework, even at room temperature. This was attributed to the scarceness of NH_4^+ sites or trap sites because of the preparation of the NH_4^+ forms of the zeolites with an $(\text{NH}_4)_2\text{SO}_4$ solution. The crystal field splittings were found and interpreted.

Key words: EPR; Zeolites; O_2^- ; NH_4NaY ; NH_4CaA .

Reprint requests to Prof. Dr. F. Köksal; Fax: +90 3624 576081.