

Crystallochemistry of Natural Zeolites from “Tuful de Dej” (Romania)

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In Romania, natural zeolites occur in different geological environments (magmatic, crystalline and sedimentary), but the largest spreading is known in the sedimentary formations of the Transylvanian Basin, hosted by the Badenian volcanic tuffs ("Tuful de Dej").

The X-Ray investigations in two different zones of the Transylvanian Basin (the Dej-Bistrita Nasaud and Cluj Napoca Zones) have emphasized (i) a large variation of the zeolitic species, (ii) common and different species (iii) some differences between those two zones: a relative mineralogical homogeneity in the Dej-Bistrita Nasaud (*ferrierite, mordenite, epistilbite, thomsonite, natrolite, scolecite, faujasite*) and more variations in the Cluj Napoca One (*thomsonite, faujasite, scolecite, mesolite, heulandite, mordenite, epistilbite, gonnardite, ferrierite, clinoptilolite, chabazite, natrolite*).

Chemically, they include Al, Si, Na and Ca in their crystalline network but Fe³⁺ and K are presented too, emphasizing some possible substitutions between Al - Fe³⁺ and Na – K.

Chemical homogeneity emphasized by zeolites from the Dej Bistrita-Nasaud Zone and some obvious differences remarked in the Cluj Napoca Zone have determined the similar zeolitic minerals and zeolitic mineral assemblages in the Dej-Bistrita Nasaud Zone and more differences in the Cluj Napoca Zone.

Keywords: zeolites, chemistry, x-ray