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# Properties of the Zeolite, Faujasite, Substitutional Series: A Review with New Data

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**Abstract:** New information is presented relating to the hydrothermal stability, lattice parameters, and adsorptive, electrical, and catalytic properties of synthetic and natural faujasite. Present concepts concerning the nature and relationship of synthetic and natural faujasite are restated to be consistent with the experimental evidence and the developed physical model. The major structural and physicochemical properties reflect the close similarities and smooth gradations expected of substitutional members of a continuous series. The existing division of the range (2– 6) of  $\text{SiO}_2/\text{Al}_2\text{O}_3$  mole ratios (S/A) at 3 into two compositional subranges is shown to be unjustifiable and rather misleading. Individual compositions from these two subranges do not represent distinctly different zeolite species; instead, it is demonstrated that they are members of a continuous series with smoothly changing properties over the studied range of  $\text{SiO}_2/\text{Al}_2\text{O}_3$ . Some of the properties of the natural mineral faujasite are found to be very similar to those of the synthetic analogs with the same  $\text{SiO}_2/\text{Al}_2\text{O}_3$  mole ratio.

Finally, a plea is made for a uniform nomenclature which will serve to identify specific (single) compositions (instead of ranges of compositions); reflect the continuity, close similarities and interrelationships in their main structural and physicochemical properties; and also identify the characteristics of the faujasite group.

*Clays and Clay Minerals*; October 1973 v. 21; no. 5; p. 379-389; DOI: [10.1346/CCMN.1973.0210514](https://doi.org/10.1346/CCMN.1973.0210514)

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