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## ORGANO-ZEOLITES IN ENVIRONMENTAL POLLUTION ABATEMENT PROCESSES II. REMOVAL OF METAL ANIONS

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### Abstract

The uptake of the tetraethylammonium iodide by natural clinoptilolite rich zeolitic tuffs from Marsid (I) and Paglisa (II), and the subsequent retention of anions by the surfactant - modified zeolite were studied.

Tetraethylammonium anion is a large organic cation that is too big to enter the internal channels of clinoptilolite; however this cation was quantitatively taken up the external surfaces of the clinoptilolite. The macroporous clinoptilolite (I) holds back max. 40 meq TEA<sup>+</sup>/100g, while the microporous clinoptilolite (II) hold back max. 37.9 TEA<sup>+</sup>/ 100g.

The unmodified clinoptilolite showed no affinity for phosphate anions, while both Ca - clinoptilolite and the surfactant modified clinoptilolite took up about 1.8 meq/g of PO<sub>4</sub><sup>3-</sup>. We suppose that the phosphate anions were retained via anion exchange on the outward - pointing, positively charged headgroups of the surfactant layers, probably bilayer forms.

*Keywords:* environment, anions retention, clinoptilolite, water decontamination

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