



“Gheorghe Asachi” Technical University of Iasi, Romania



APPLICATION OF NATURAL ZEOLITES AS SORBENTS IN THE CLEAN-UP OF AQUEOUS STREAMS

Daniela Ionela Tudorache Fertu, Maria Gavrilescu*

*“Gheorghe Asachi” Technical University of Iasi, Romania, Faculty of Chemical Engineering and Environmental Protection,
Department of Environmental Engineering and Management, 73 Prof.dr.docent D. Mangeron Street, 700050, Iasi, Romania*

Abstract

Natural zeolites can be found in volcanogenic sediments as large, widespread, mineable, near-monomineralic deposits in tuffaceous rocks. Apart of their applications as building stone, as lightweight aggregate and pozzolans in cements and concretes, as filler in paper etc., their properties as low-cost natural materials mimicking those of many synthetic counterparts are exploited in environmental protection and cleanup.

Natural zeolites found important uses in pollution control, the handling and storage of nuclear wastes, agriculture, and biotechnology. Considerable effort has made to find the most efficient ways to apply natural zeolites as an active counterpart in sorption, cation-exchange, dehydration–rehydration, and catalytic processes.

The present paper analyses some aspects of the present status of research on application of natural zeolites in environmental protection. The overview provides a short appraisal of the recent discovery concerning the natural zeolites and their modified forms in the separation, binding and chemical stabilization of some inorganic and organic in aqueous systems.

Key words: adsorption, clinoptilolite, equilibrium, ion exchange, kinetics,

Received: October 2011; Revised final: March 2012; Accepted: March 2012

* Author to whom all correspondence should be addressed: e-mail: mgav@tuiasi.ro