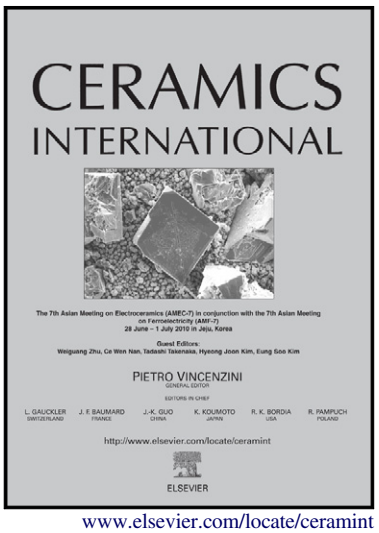

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L. Calabrese, L. Bonaccorsi, D. Di Pietro, E. Proverbio

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EFFECT OF PROCESS PARAMETERS ON BEHAVIOUR OF ZEOLITE COATINGS OBTAINED BY HYDROTHERMAL DIRECT SYNTHESIS ON ALUMINIUM SUPPORT

L. Calabrese*, L. Bonaccorsi, D. Di Pietro, E.Proverbio

email: lcalabrese@unime.it; lbonaccorsi@unime.it; ddieptro@unime.it;

edoardo.proverbio@unime.it

Department of Electronic Engineering, Industrial Chemistry and Engineering

University of Messina , Contrada di Dio (Sant'Agata), 98166 Messina (Italy)

* Corresponding author:

Tel.: +39 090 3977544, Fax: +39090397464

ABSTRACT

This work reports the results of an experiment study on anti-corrosion coatings obtained by direct growth of zeolite Y films on aluminium substrates by an amine-modified hydrothermal synthesis. In particular, the effect of TEA (triethanolamine) presence was evaluated in terms of coating performances by varying synthesis times and drying temperatures. The morphological analysis showed that the films were homogeneous and compact up to 120 μm in thickness. Peel tests confirmed the good adhesive properties of all kinds of investigated coatings. In the end, electrochemical tests, carried out in 3.5% NaCl and in $Ca(OH)_2$ saturated solution, showed good barrier properties offered by this type of coating. Low drying temperature allowed to keep TEA entrapped in the zeolite structure so that it greatly influenced corrosion protection behaviour.

Keywords: Aluminium alloy; Coating; zeolite; adhesion; corrosion.