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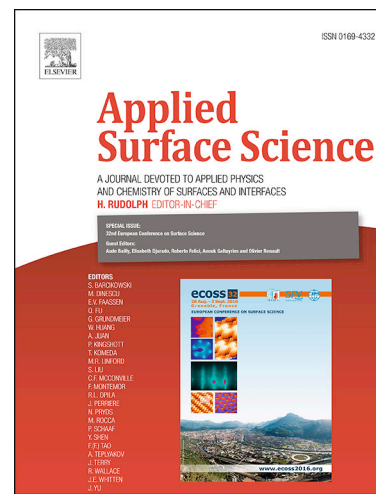
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Self-assembled Monolayer of Mica Coating using Organobisphosphonic acid

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ABSTRACT: A hexadecane-1,1-bisphosphonic acid monolayer was grafted on the surface of muscovite mica via a simple self-assembled method. The result of AFM showed that the height of the bisphosphonate SAMs was about 2.40 nm, corresponding to both monolayer-like coverage and the hydrocarbon chain length. TOF-SIMS indicated that the reaction between bisphosphonic acid and silicon was took place on the surface of mica substrate. It can be proved from IR, AFM, XPS, and TOF-SIMS that the alkylbisphosphonate SAM was bonded to the mica with the mode of double-tridentate attachment. In addition, organobisphosphonate SAM possessed excellent orderliness and stability, which provides a theoretical basis for its efficient application in the field of organic modification.

Keywords: *self-assembled monolayers, surface modification, hexadecane-1, 1-bisphosphonic acid*

1. Introduction

With the increase of demand for micro/nano-scale manufacturing in both academia and industry, self-assembled monolayers (SAMs) on solid surfaces have

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