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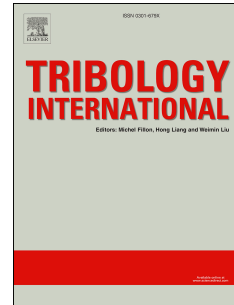
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## Development of durable self-cleaning superhydrophobic coatings for aluminium surfaces via chemical etching method

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### Abstract

In this work, by employing chemical etching technique with mixture of hydrochloric and nitric acids, followed by treatment with hexadecyltrimethoxysilane, superhydrophobic aluminum surfaces were synthesized. The surface morphology analysis reveals the presence of rough rectangular pits like microstructures on coated aluminium surface. Superhydrophobicity with water static contact angle of  $162.0 \pm 4.2^\circ$  and sliding angle of  $4 \pm 0.5^\circ$  is achieved. Additionally coating shows the excellent mechanical, chemical, and thermal stability. Coating asserts the excellent self-cleaning and water-repellent properties.

**Keywords:** Superhydrophobic; Water repellent; Chemical etching; Self-cleaning

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