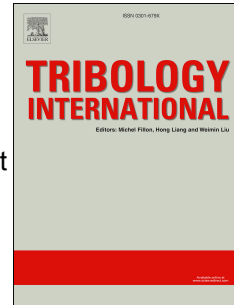


# Accepted Manuscript

Durable and regenerable superhydrophobic coatings for brass surfaces with excellent self-cleaning and anti-fogging properties prepared by immersion technique

Priya Varshney, Soumya S. Mohapatra



PII: S0301-679X(18)30123-3

DOI: [10.1016/j.triboint.2018.02.036](https://doi.org/10.1016/j.triboint.2018.02.036)

Reference: JTRI 5135

To appear in: *Tribology International*

Received Date: 4 October 2017

Revised Date: 29 January 2018

Accepted Date: 23 February 2018

Please cite this article as: Varshney P, Mohapatra SS, Durable and regenerable superhydrophobic coatings for brass surfaces with excellent self-cleaning and anti-fogging properties prepared by immersion technique, *Tribology International* (2018), doi: 10.1016/j.triboint.2018.02.036.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

**Durable and regenerable superhydrophobic coatings for brass surfaces  
with excellent self-cleaning and anti-fogging properties prepared by  
immersion technique**

Priya Varshney and Soumya S. Mohapatra\*

*Department of Chemical Engineering, National Institute of Technology Rourkela 769008,  
Odisha, India*

**Abstract**

In this work, superhydrophobic coatings on brass surfaces were prepared by two-step (chemical etching with a mixture of hydrochloric and nitric acids, followed by treatment with lauric acid) and one-step (treatment with lauric acid). The surface morphology shows the presence of rough microstructures on treated brass surfaces. Superhydrophobicity with high water static contact ( $>173^\circ$ ) and low sliding angles ( $<4^\circ$ ) is achieved by both processes. Besides, the dynamics of water droplets on the coated samples also were studied. Additionally, the durability of the coatings also was examined by performing thermal, chemical, and mechanical stability tests. Along with, these coatings are also found to be excellent regeneration ability as verified experimentally. Further, coatings exhibit self-cleaning and anti-fogging properties.

**Keywords:** Superhydrophobic; Self-cleaning; Anti-fogging; Water-repellent

\*Corresponding Author: Dr. Soumya S. Mohapatra ([mohapatras@nitrkl.ac.in](mailto:mohapatras@nitrkl.ac.in))

Download English Version:

<https://daneshyari.com/en/article/7001747>

Download Persian Version:

<https://daneshyari.com/article/7001747>

[Daneshyari.com](https://daneshyari.com)