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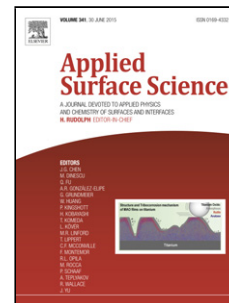
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Robust superhydrophobic tungsten oxide coatings with photochromism and UV durability properties

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Highlights

- Superhydrophobic tungsten oxide (TO) coatings with a water contact angle (WCA) of 155° and rolling angle of 3.5° were developed
- **The superhydrophobic coatings have excellent mechanical robustness and UV durability**
- **The superhydrophobic TO coatings show the reversible convert of photochromism**
- The coating exhibited excellent self-cleaning behavior due to its high WCA and low rolling angle.

Abstract

Robust superhydrophobic tungsten oxide (TO) coatings with a water contact angle (WCA) of 155° were developed for photochromism via a facile and substrate-independent route. Importantly, after scratch test on both a single and two orthogonal direction, the TO coating still exhibited superhydrophobic behavior, indicating excellent mechanical robustness. It is worth mentioning that the superhydrophobic TO coatings showed the reversible convert of photochromism of WO₃ induced by alternating UV and visible light irradiation. Besides that, the TO coating remained superhydrophobicity after UV irradiation for 36 h, showing

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