

Accepted Manuscript

Transparent and water repellent ceria film grown by atomic layer deposition

Qipeng Lv, Shaoqian Zhang, Songwen Deng, Yinsheng Xu, Gang Li, Qingwei Li, Yuqi Jin



PII: S0257-8972(17)30058-0
DOI: doi: [10.1016/j.surfcoat.2017.01.058](https://doi.org/10.1016/j.surfcoat.2017.01.058)
Reference: SCT 22034
To appear in: *Surface & Coatings Technology*
Received date: 18 August 2016
Revised date: 16 December 2016
Accepted date: 17 January 2017

Please cite this article as: Qipeng Lv, Shaoqian Zhang, Songwen Deng, Yinsheng Xu, Gang Li, Qingwei Li, Yuqi Jin , Transparent and water repellent ceria film grown by atomic layer deposition. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Sct(2017), doi: [10.1016/j.surfcoat.2017.01.058](https://doi.org/10.1016/j.surfcoat.2017.01.058)

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.

Transparent and Water Repellent Ceria Film grown by Atomic Layer Deposition

Qipeng Lv^a, Shaoqian Zhang^{a,*}, Songwen Deng^a, Yinsheng Xu^b, Gang Li^{a,*}, Qingwei Li^a, Yuqi Jin^a

^aKey Laboratory of Chemical Lasers, Chinese Academy of Sciences/Dalian Institute of Chemical Physics, Dalian 116023, China

^bKey Laboratory of Photoelectric Materials and Devices of Zhejiang Province, Ningbo University, Ningbo, 315211, China

*Corresponding author. Tel./Fax:+86 411 84379263. Email address:zhangsq@dicp.ac.cn, lig@dicp.ac.cn.

Abstract:

Transparent and hydrophobic ceria film was fabricated by atomic layer deposition (ALD). The ceria coatings were characterized by goniometry, atomic force microscopy, X-ray photoelectron spectroscopy and variable angles spectroscopic ellipsometry. The hydrophobicity of the ceria coatings was investigated with water contact angles achieving as high as 105°. The effect of annealing or surface relaxation on the hydrophobicity was studied. Surface chemistry analysis of the ceria surfaces was carried out to understand the surface treatment towards the wettability of the ALD coatings. The proposed ALD ceria film offers the advantages of hydrophobic coatings covering fine optical lens such as band-pass filter.

Keywords: Hydrophobic, Atomic layer deposition, Transparent, Rare-earth oxide, Coatings

Download English Version:

<https://daneshyari.com/en/article/5464959>

Download Persian Version:

<https://daneshyari.com/article/5464959>

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