

Article

Seeking the Oxidation Mechanism of Debris in the Fretting Wear of Titanium Functionalized by Surface Laser Treatments

María del Carmen Marco de Lucas ^{1,*} , Franck Torrent ¹, Gianni-Paolo Pillon ¹ , Pascal Berger ²  and Luc Lavissee ¹ 

¹ Laboratoire Interdisciplinaire Carnot de Bourgogne (ICB), UMR 6303 CNRS-Université Bourgogne, 9 Av. Alain Savary, BP 47 870, CEDEX, F-21078 Dijon, France; gianni-paolo.pillon@u-bourgogne.fr (G.-P.P.); luc.lavissee@u-bourgogne.fr (L.L.)

² Université Paris-Saclay, CEA, CNRS, NIMBE, 91191 Gif-sur-Yvette, France; pascal.berger@cea.fr

* Correspondence: delucas@u-bourgogne.fr

1. Optical microscopy observations

Figure S1 shows optical microscopy images of the laser treated surfaces of titanium plates. An OLYMPUS DSX-CB microscope was used for 2D image acquisitions.

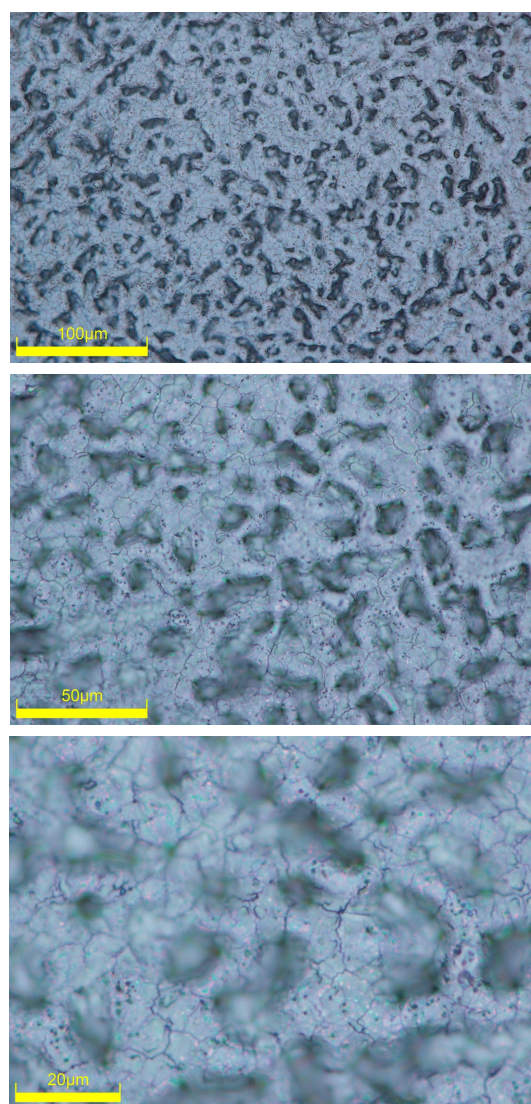


Figure S1. Optical microscopy images of the laser treated surfaces of titanium plates.



Citation: Marco de Lucas, M.d.C.; Torrent, F.; Pillon, G.-P.; Berger, P.; Lavissee, L. Seeking the Oxidation Mechanism of Debris in the Fretting Wear of Titanium Functionalized by Surface Laser Treatments. *Coatings* **2023**, *13*, 1110. <https://doi.org/10.3390/coatings13061110>

Academic Editor: Salvatore Siano

Received: 30 April 2023

Revised: 31 May 2023

Accepted: 5 June 2023

Published: 16 June 2023



Copyright: © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

2. Surface topography

The surface topography of titanium plates before and after laser treatment was studied using a DektakXT stylus profilometer. Figure S2 shows the surface profilograms obtained over a length of 2 mm for a non-laser-treated zone and for a laser-treated zone. The diameter of the stylus was 2 μm . The figure shows that the roughness of the laser-treated surfaces is higher compared to the untreated surfaces, but this increase remains acceptable.

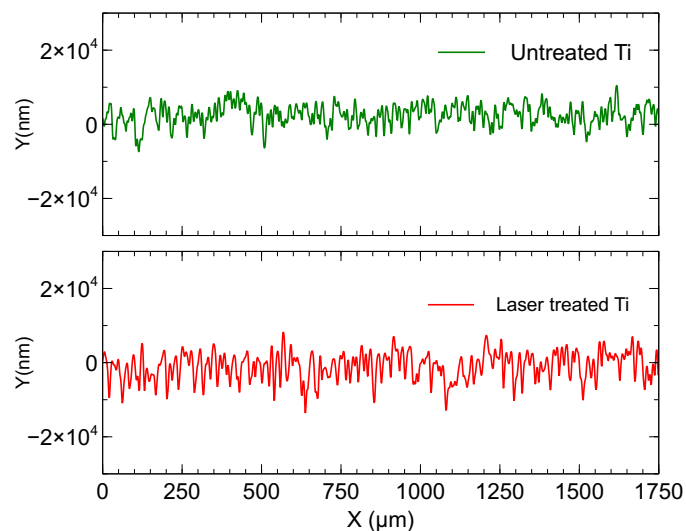


Figure S2. Profilograms obtained over a length of 2 mm for a non-laser-treated zone and for a laser-treated zone.