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Z. Chen, R. Goltsberg, I. Etsion

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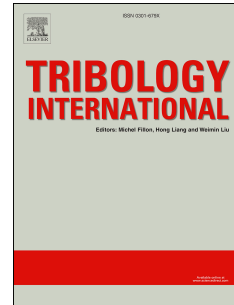
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Yield Modes in a Coated Spherical Contact

Chen Z., Goltsberg R. and Etsion I*.

Dept. of Mechanical Engineering, Technion, Haifa, 32000, Israel

Abstract

A finite element analysis is used to investigate the yield inception in a coated sphere, with hard coating, compressed by a rigid flat. Various modes of yield inception on the axis of symmetry at single or simultaneous double or triple locations are observed depending on the dimensionless coating thickness and material properties. The different yield modes are presented in a yield map, which enables to identify the yield mode of any actual coated system based on its material and geometrical properties. Good agreement is found between the current yield map and a few published results. Some improvements of the current yield map compared to previously published ones are discussed.

Keywords: Yield map; Hard coatings; Coated spherical contact

* Corresponding author etsion@technion.ac.il

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