

THE PREDICTION OF MICROPITTING INITIATION ON GEAR TEETH: A NUMERICAL MODEL AND ITS CORRELATION WITH EXPERIMENTAL DATA

J. A. Brandão¹, J. O. Seabra², M. J. Castro³

¹Bolseiro de investigação, INEGI, FEUP

²Prof. Associado, DEMEGI, FEUP

³Prof. Adjunto, Departamento de Engenharia Mecânica, ISEP



ABSTRACT

A numerical model for the prediction of micropitting initiation on gear teeth flanks and, to some extent, of mild wear is presented. This model hinges on a model of the mixed film lubrication regime and on the application of the Dang Van high-cycle multi-axial fatigue criterion. A comparison of an actual micropitting test on spur gears with its simulation using the model is made with regard to the mass loss of the driving gear and the evolution of its roughness.