

PLASTICITY INDEX A MEASURE OF DRY SLIDING WEAR FOR NI-BASED COATING

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Abstract

Ni-based coatings are extensively used in industry for the surface properties enhancement and improving the system performance under different operating conditions. The resistance to wear and corrosion of the components is found to be improved when the substrate is coated with the coating powder. However, determining the wear rate and wear mechanism is very important and time-consuming process. The coating and counter material properties play important role in the wear rate and wear mechanism. The plasticity index in the dry sliding condition may be used as wear measuring indicator which is governed by the hardness of the coating, asperity radius and the reduced elasticity modulus. In this paper, the plasticity index for different combinations of tribopair (Coating and counter materials) is compared with the dry sliding wear rate obtained for respective pairs. The outcomes show that the specific wear rate obtained for the dry sliding wear can be directly related to the plasticity index.

Keywords: Ni-based coating · plasticity index · dry sliding wear



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