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Development & Characterization of Low Friction Wear & Corrosion Resistant Coating for Automobile Application

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Abstract

Multilayer protective coatings that are applied over a substrate are disclosed that comprise a plurality of superimposed multilayer units. Each multilayer unit contains two or more superimposed thin layers in which at least two layers are compositionally different. The properties of the resulting coating are a combination of the properties of the individual layers. One layer of the multilayer unit may provide hardness or wear resistance, another layer is corrosion resistant and another layer may provide lubricity. The substrate materials chosen are Inconel 600,625 and 718. The coating materials chosen to coat from the direction of substrate are Al₂O₃, Cr₃C₂ – NiCr and BN. The multilayer coated specimens will be subjected to various mechanical, wear and corrosion tests followed by morphological studies. Also suitable application of the developed coated specimens in various automobile/high temperature applications will be identified.

Keywords:

Multilayer Coatings, Inconel, Al₂O₃, Cr₃C₂ – NiCr, BN, AFM, Wear, Corrosion, SEM & XRD

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