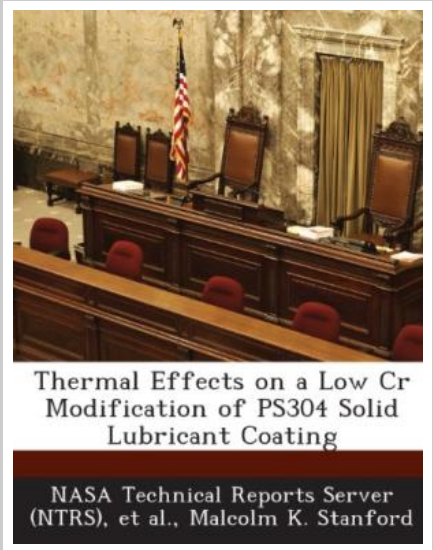

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Thermal Effects on a Low Cr Modification of Ps304 Solid Lubricant Coating

By Malcolm K. Stanford

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 28 pages. Dimensions: 9.7in. x 7.4in. x 0.1in.PS304 is a high temperature composite solid lubricant coating composed of Ni-Cr, Cr2O3, BaF2-CaF2 and Ag. The effect of reducing chromium content on the formation of voids in the Ni-Cr particles after heat treatment in PS304 coating was investigated. Coatings were prepared with Ni-20Cr or Ni-10Cr powder and in various combinations with the other constituents of PS304 (i. e. , chromia, silver and eutectic BaF2-CaF2 powders) and deposited on metal substrates by plasma spray. Specimens were exposed to 650 C for 24 hr or 1090 C for 15 hr and then examined for changes in thickness, coating microstructure and adhesion strength. Specimens with Ni-10Cr generally had less thickness increase than specimens with Ni-20Cr, but there was great variance in the data. Reduction of chromium concentration in Ni-Cr powder tended to reduce the appearance of voids in the Ni-Cr phase after heat exposure. The presence of BaF2-CaF2 resulted in a significant increase in coating adhesion strength after heat treatment, while coatings without BaF2-CaF2 had no significant change. Chemical composition analysis suggested that the void formation was due to oxidation of chromium in...

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