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Study of Mechanical Properties of adhesion on coatings obtained by thermal spraying

Y. Alves[1], J. Barbosa[2], A. Costa[3], P. Araújo[4]

[1]Universidade Federal de Sergipe, UFS, Núcleo de Pós Graduação em Ciências e Engenharia de Materiais, yurifisico@yahoo.com.br.
[2]Universidade Federal de Sergipe, UFS, Núcleo de Engenharia Mecânica, Laboratório de Energia e Materiais(LEM), jessycajbarbosa@yahoo.com.
[3]Universidade Federal de Sergipe, UFS, Núcleo de Engenharia Mecânica, Laboratóriode Energia e Materiais(LEM), andrecosta@bol.com.br.
[4]Universidade Federal de Sergipe, UFS, Núcleo de Pós Graduação em Ciências e Engenharia de Materiais, paubaumm@yahoo.com.br

This work is an experimental attempt to verify the validity of the theoretical model used to interface relation proposed by Chicot and Lesage. For this, is presented a study about the mechanical properties of interface from the instrumented penetration tests. One of the major points to be considered in this study, is related to the characteristics of materials as the influence of the deformation and micro-defects on the mechanical properties. In this work are also presented and developed discussions relating to others properties, especially the behavior of the modulus of elasticity for different situations in which the materials are found. Were used to develop this work, specimens taken from sucker rods, which are used in petroleum production equipment. These rods were coated with two kinds of materials, a base the NiCr and the other base the Al , both obtained by the process of thermal spray (spray arc). With the utilizing of tests the penetration instrumented, was carried out indentations in the coatings, in the substrate and in the interface of each sample. With the results, which were applied in the interfacial theoretical model and thereafter tried to verify its validity.

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[2] LESAGE, J., STAIA, M. H., CHICOT, D., GODOY, C., DE MIRANDA, P. E. V., “Effect of thermal treatments on adhesive properties of a NiCr thermal sprayed coating”. (Thin Solid Films 377-378, 2000, pp. 681-686).