

Studies on Corrosion Resistant Composite Coating for Metallic Surfaces

Authors : Navneetinder Singh, Harprabhjot Singh, Harpreet Singh, Supreet Singh

Abstract : Many materials are known to mankind that is widely used for synthesis of corrosion resistant hydrophobic coatings. In the current work, novel hydrophobic composite was synthesized by mixing polytetrafluoroethylene (PTFE) and 20 weight% ceria particles followed by sintering. This composite had same hydrophobic behavior as PTFE. Moreover, composite showed better scratch resistance than virgin PTFE. Pits of plasma sprayed Ni₃Al coating were exploited to hold PTFE composite on the substrate as Superni-75 alloy surface through sintering process. Plasma sprayed surface showed good adhesion with the composite coating during scratch test. Potentiodynamic corrosion test showed 100 fold decreases in corrosion rate of coated sample this may be attributed to inert and hydrophobic nature of PTFE and ceria.

Keywords : polytetrafluoroethylene, PTFE, ceria, coating, corrosion

Conference Title : ICTPTS 2018 : International Conference on Thermomechanical Processing Technologies for Steels

Conference Location : Toronto, Canada

Conference Dates : July 19-20, 2018