

66th International Astronautical Congress 2015

MATERIALS AND STRUCTURES SYMPOSIUM (C2)
Interactive Presentations (IP)

Author: Mr. Michael Eisfelder
Monash University, Australia, mpeis1@student.monash.edu

CVD METHODS FOR GRAPHENE GENERATION ON STAINLESS STEELS FOR CORROSION
RESISTANCE

Abstract

Stainless steel 316L and duplex stainless steel 2507 were exposed to hydrocarbons under low vacuum and high temperatures in order to generate graphene via chemical vapour deposition (CVD) methodologies. Raman spectroscopy identified that oxidation was present, with no carbon based compounds being formed. Through electrochemical characterisations it was found that this oxidation was severely detrimental compared to untreated steels, suggesting a need for changed conditions when coating graphene on stainless steels via CVD. The effects of graphene as a uniform coating with regards to stainless steels is still required.