Paper ID: 15658
poster

MATERIALS AND STRUCTURES SYMPOSIUM (C2)
New Materials and Structural Concepts (4)

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ALUMINIUM-SCANDIUM ALLOY'S COMPATIBILITY WITH HIGH CONCENTRATIONS HYDROGEN PEROXIDE

Abstract

High concentration hydrogen peroxide(H2O2) has characteristics of heavy density, high specific impulse, storable and non-toxic, the compatibility of H2O2 is an important index in hydrogen peroxide propellant tanks design. Aluminium alloy contained scandium possesses high strength, plasticity and very good welding property, corrosion resistance property and so on. The compatibility of medium strength 5B70 aluminium alloy contained Scandium with 90% H2O2 was investigated. The results show active oxygen loss ratio of H2O2 with 5B70 alloy is less than 5%, strength loss less than 5%, pitting corrosion is the typical characteristic of the 5B70 alloy. The 5B70 alloy is an ideal performance high concentration H2O2 tank's material.