



Presented at NDE2002, to predict. assure. improve. www.nde2002.org
National Seminar of ISNT, the Indian Society for Non Destructive Testing
Hotel Taj Connemara and Raja Muthiah Hall, Chennai, 05. – 07. 12. 2002

Ultrasonic Evaluation of Multilayer Bonds (Composite / Ceramic Cement / Metal) in Rocket Thrust Chambers

V. K. Ravindran, R. Sundaresan , B. C. Bhaumik
Quality Division - Rocket System Evaluation

Vikram Sarabhai Space Center, Thiruvananthapuram

Abstract

Thrust chamber and Nozzle are critical functional parts in a Rocket Propulsion system. The nozzle region of rocket consists of layers of different materials. Quality of these materials as well as their interfaces have to be ensured. In certain cases these materials can be evaluated independently before bonding to form the multi layered product. But in the case of certain ceramic/insulators (like ceramic cement preparation), they are formed into a layer only during the assembly operations. Thus, it is not possible to characterize or evaluate the material individually before assembly. This paper describes the development of the methodology and application of an ultrasonic non-destructive evaluation process for the materials and interfaces after assembly of the multi layered elements.