

MATERIALS AND STRUCTURES SYMPOSIUM (C2)
Advanced Materials and Structures for High Temperature Applications (4)

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ADVANCED SILICA TILE THERMAL PROTECTION SYSTEM FOR REUSABLE LAUNCH
VEHICLES: DEVELOPMENT & QUALIFICATION

Abstract

Reusable Launch Vehicles (RLV) engages a variety of Thermal Protection Systems (TPS). One such system adopted for the windward region of RLV programme conceived in Indian Space Research Organization's (ISRO) is silica tile TPS. This paper presents the development and qualification efforts on the realization of advanced silica tile thermal protection system (TPS) for reentry vehicles. It briefs the processing route involved in the fabrication of the silica tile having density 0.3 g/cc, thermal conductivity 0.08 W/mK, CTE 0.05 ppm/K and emissivity 0.83. It reviews the results of lab level qualification trials on the system for the evaluation of its physical mechanical properties, and its performance under induced environments.