

Materials, Science & Technology 2019 Abstract: For spacecraft entering an atmosphere, a reduction in TPS mass is directly proportional to the increase in payload mass. The HOLLOW TPS concept is a reusable material with lower density and similar thermal capabilities to traditional tiles. Using HOLLOW TPS to replace a percentage of the tiles on a flight vehicle could save up to 35% mass depending on the mission objectives and flight path. The HOLLOW TPS will also increase an equal amount of payload capacity, increasing the efficiency of the mission.