

Reducing Mission Logistics with Multipurpose Cargo Transfer Bags

Abstract

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The Logistics Reduction (LR) project within Advanced Exploration Systems (AES) is tasked with reducing logistical mass and repurposing logistical items. Multipurpose Cargo Transfer Bags (MCTB) have been designed such that they can serve the same purpose as a Cargo Transfer Bag (CTB), the common logistics carrying bag for the International Space Station (ISS). After use as a cargo carrier, a regular CTB becomes trash, whereas the MCTB can be unfolded into a flat panel for reuse. Concepts and potential benefits for various MCTB applications will be discussed including partitions, crew quarters, solar radiation storm shelters, acoustic blankets, and forward osmosis water processing. Acoustic MCTBs are currently in use on ISS to reduce the noise generated by the T2 treadmill, which reaches the hazard limit at high speeds. The development of the AMCTB included identification of keep out zones, acoustic properties, deployment considerations, and structural testing. Features developed for these considerations are applicable to MCTBs for all crew outfitting applications.