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IAF MATERIALS AND STRUCTURES SYMPOSIUM (C2)
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Author: Ms. Eman AbuZeitoun
Jordan

Ms. Salam AbuAlhayjaa
Jordan
Mr. HANI ALAJLOONY
Jordan
Ms. Emmy Helen Jewell
Mars Academy USA, United States
Mr. Nicholas Jewell
Mars Without Borders, Inc, United States
Dr. Susan Jewell
The Mars Society, United States

SPACESUIT FABRICS AND MATERIALS SELECTION

Abstract

Material selection for analog space suits is an important process that involves determining which materials will be used in the suit's construction.

The materials chosen must be durable, lightweight, and able to withstand the harsh conditions of space, while also allowing the astronaut adequate mobility and flexibility and protecting them from radiation, as long-term exposure of these fabrics to space radiation environments, most likely due to UV and high energy particle radiation, will cause them to embrittle. They must also be able to optimize the thermal performance of the suit.

The material selection process for analog space suits typically entails material evaluation based on physical properties such as thermal conductivity, tensile strength, and radiation shielding Materials are also evaluated for abrasion resistance, chemical degradation, and flammability.

When selecting materials for the suit, other factors such as cost, availability, and ease of manufacture are taken into consideration.

In this paper, we will discuss everything related to the materials selection for the spacesuit.