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Space Radiation Protection Gloves Comprising Shaped Mycoleather Layers

Researchers at Purdue University have developed a novel method for cultivating a radiation-resistant mycelial strain and forming it into lightweight, flexible mycoleather gloves. Unlike traditional radiation personal protective equipment (PPE), which is often stiff, bulky, and offers inadequate shielding from cosmic radiation, these next-generation gloves offer enhanced protection with superior comfort and dexterity. Designed for demanding applications from space travel to nuclear energy and medical diagnostics, the gloves are breathable, moisture-wicking, and more cost-effective to produce, representing a new frontier in sustainable protective equipment.

Technology Validation:

The method of cultivating mycelia to produce the gloves was validated through practical testing on two varieties of specially designed molds. Strategies were used to direct mycelial growth, which was shown to achieve robust filling of the molds. Novel mycelium strains were developed through selective breeding or genetic engineering to have enhanced radiation resistance. Further testing is planned to optimize workflow, investigate different potential components, and further evaluate mycelial strains.

Advantages:

-Enhanced radiation shielding

-Lightweight, flexible design for improved dexterity

-Breathable and thermoregulating

-Low fabrication costs

-High strength, stretch, and tear resistance under demanding conditions

-Sustainable, bio-based material

Applications:

Technology ID
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Category
Materials Science & Nanotechnology/Biomedical & Bioinspired Materials

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Intellectual Property:

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PCT-Patent, 2025-03-28, WO

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