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Silicone Padding Embedded in Fabric

Lightweight, porous silicone pads with impact sensors for protective and sports equipment.

Researchers at Purdue University have developed a new silicone padding which can be embedded into woven and nonwoven fabrics such as protective equipment and sporting equipment. There is a move away from multiple layered padding to a padding that can simply be worn on the exterior of the skin because it can be abrasive, heavy, and wear down quickly. There remains an unmet need to develop a strong and light-weight padding that can handle high impact with high compression resistance. Purdue researchers introduce a unique vacuum-bell curing process to create light-weight silicone padding with fine porosity. Various compositions of this padding have been tested under applied force to create a material with strong response to impact. In addition, sensors can be added to the silicone padding to notify users if the material is being worn down and may need to be replaced, which helps to ensure user safety.

Advantages

-Energy Absorbent

-Reliable

-Easily Integrated into Woven and Nonwoven Fabrics

Potential Applications

-Protective Equipment

-Sporting Equipment

TRL: 4

Intellectual Property:

Provisional-Patent, 2020-05-01, United States

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Category

Chemicals & Advanced Materials/Polymer Science & Smart Materials

Digital Health & Medtech/Wearable Health Tech & Biosensors

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Utility Patent, 2021-04-30, United States

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