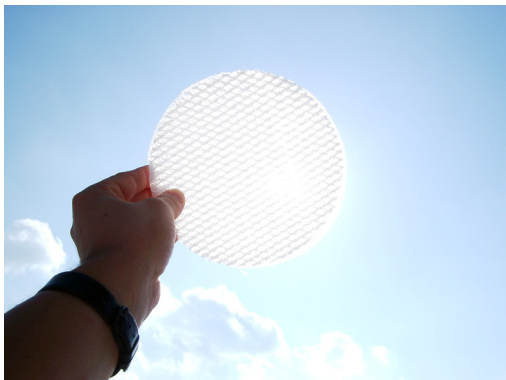

The polar bear as a model for heat insulation

The idea for the development of a transparent, flexible heat insulation material has its source in nature. The skin of the polar bear acted as the model - the skin which retains the heat of the wearer between its hair by means of an insulating air cushion.



Nature benefits from the transparent heat insulation and uses it with many living beings of the high-alpine and arctic living space. The dense skin protects the polar bear against the arctic cold – the skin, which retains the heat of the wearer. The transparent hair of the polar bear, which is similar to hollow fibres, makes it possible to effectively prevent the loss of heat by the occlusion of tiniest air cushions and to release the solar energy to the black skin (epidermis).



According to this principle, a heat-insulating material on textile basis was developed, which, for example, can be used for the covering of solar collectors. The transparent top side of the newly developed coating supports the transmission of the sunlight. A dark, absorbing layer at the bottom side supports heat production. The fibre-based material is light, flexible, translucent, and unbreakable, thus being particularly suitable for many solar-thermal applications.

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