



Infrared emissivity of microcapsules of organic phase change materials dispersed into smart wearable textiles

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Smart textiles are becoming more integrated with service ecosystems that go beyond the current horizontal textile value chain. These novel products that have been developed by many researchers with specific functionalities and features and they are gaining much importance in the advent of wearable and e-textiles. Phase change materials (PCMs) can make great example of smart wearable textiles which can bring the change at the functionality of traditional textiles such as, thermoregulation effect. The textiles used in this paper can modify their infrared radiation emission, thus they can be envisioned to exploit thermal shielding applications. During the heating and cooling processes, dispersed microencapsulated PCMs exhibit different emissivity due to their capacity to absorb, store and release heat energy. In this study infrared thermographic technique is used to measure the thermal properties such as, infrared emissivity. The obtained experimental results show a dynamic tuning of IR emissivity during two different heating and cooling process.

References

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