

# FIBER COMPOSITE PHASE CHANGE ENERGY STORAGE PIPELINE



What is a phase change fibre? Based on PCMs, phase change fibres (PCFs) have been developed to achieve constant temperatures inside clothing and reduce the discomfort caused by changes of the external environment temperature through the reversible storage and release of thermal energy , , .



Are CNT/Peg Composite phase change fibers suitable for wearable thermal management textiles? High thermal and electrical performances are realized for CNT/PEG composite phase change fibers. Phase change fibers with abilities to storage/release thermal energy and response to multiple stimuli are of high interest for wearable thermal management textiles.



What is a PCM combined energy storage pipe? According to the concept of phase change energy storage, a PCM combined energy storage pipe was proposed in this paper. Not only does the pipe have good heat preservation performance, but it can also make use of the PCM's phase change energy release property, so that the oil can be transported safely .



What is a phase change material (PCM)? Phase change materials (PCMs) are considered to be one of the most effective ways to adjust the thermal regulation function within a desired temperature range and reconcile the supply and demand mismatch of renewable energy by reversibly storing and releasing thermal energy as latent heat , , .



How long does a phase change fiber last after 120 cycles? Even after 120 cycles, the phase change index remains virtually unchanged, demonstrating a more reliable thermal recycling capability compared to some phase change fibers that only exhibit stability over a few cycles [ , , ].

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How are high performance phase change fibers prepared? High performance phase change fibers were prepared by a novel expansion-based in situ composition, where an expanded CNT network was uniformly introduced into the PEG matrix at an extremely high PEG loading. The expansion separates CNTs from aggregation and thus ensures the full utilization of CNT surfaces.



The phase change fibers containing PCMs could provide the surroundings relatively constant temperature through absorbing and releasing heat during phase transition process, ???



Flexible composite phase change materials are highly desirable for fabricating novel masks for thermotherapy of allergic rhinitis. Herein, a novel flexible composite phase change ???



The ?? value for the composite material is 97.7%, indicating that almost all the paraffin wax in the composite material can store or release energy effectively through phase ???



The oil and gas pipeline transportation technology is the key to the surface production of oil field, and the pipeline insulation technology plays an important role in realizing ???

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The goal of this study is to simulate thermal performance of a lithium ion battery cell in the presence of carbon fiber-PCM composites. The effect of carbon fiber loading within the ???



Phase change materials (PCMs), capable of reversibly storing and releasing tremendous thermal energy during nearly isothermal and isometric phase state transition, have received extensive attention in the fields of energy ???



However, when applied to thermal energy storage applications, supercooling and phase separation are problematic. To effectively circumvent this issue, this work considers utilizing ???



Based on stearic acid as phase change energy storage material, the composite PCMs with different CF content were placed in test tubes with the same pipe diameter. They ???



Flexible, stimuli-responsive and self-cleaning phase change fiber for thermal energy storage and smart textiles Zixuan Niu, Shengyang Qi, Suhaib Shuaib Adam Shuaib, Weizhong Yuan Article ???

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With the increasingly serious climate change and energy shortages, renewable energy harvesting, storage, conversion, regulation, and utilization have attracted tremendous ???



Carbon nanotube graphene multilevel network based phase change fibers and their energy storage properties?? . Xiaoyu Yang <sup>a</sup>, Jingna Zhao <sup>\* b</sup>, Tanqian Liao <sup>c</sup>, Wenya Li <sup>c</sup>, Yongyi Zhang <sup>b</sup>, Chengyong Xu <sup>a</sup>, Xiaohua ???