Patent Search

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Abstract:

The present invention relates to a multilayer polymer encapsulated phase change material (PCM) bead system for improving the energy efficiency of buildings compr core, one or more coating layer, wherein the core composed of mixtures of saturated fatty acids encapsulated by a first coating layer including biopolymer membran thermally conductive nano-additives, a second water resisting polymeric coating layer with thermally conductive nano-additives and an outermost coating layer conta and fly-ash in order to create multiple types of PCM beads system. Moreover the present invention also relates to the process for preparation of multilayer polymer e phase change material (PCM) bead.

Complete Specification

FIELD OF THE INVENTION

The present invention relates to a Phase change material (PCM). The invention further relates to multilayer polymer encapsulated phase change material (PCM) bea system and their application in buildings / structures / construction industry. It relates to improving the energy efficiency of new and existing buildings. Furthermore invention also relates to a process for preparation of the multilayer polymer encapsulated phase change material beads.

BACKGROUND OF THE INVENTION

High economic growth of last two decades has put India on the path of rapid urbanization and development of “smart Cities”. This accelerated growth in India had c a multiple fold increase in demand for electricity. This ever increasing demand for electricity is putting tremendous pressure on existing fossil fuel resources leading increased pollution and emission of greenhouse gases to an alarming level.

In 2015, 32% of total generated electricity (3,03,200 Giga Watt-hours) was consumed by domestic and commercial sectors in India. The solution involves reducing th electricity consumption in residential and commercial buildings by increasing the energy efficiency of these structures. Incorporation of phase change materials (PC buildings could help increase the energy efficiency of buildings.

US10101095B2 provide a heat storage capsule capable of being readily produced and a heat storage member using the same. A heat storage capsule 10 includes a storage material 20 reversibly changing into a hydrate of a salt and an aqueous solution of the salt and also includes a capsule coating 22 encapsulating the heat st material 20. The capsule coating 22 includes an inner sub-coating 24 and an outer sub-coating 26. The inner sub-coating 24 is a hydrogenated oil layer. The outer su coating 26 is made of a hydrophilic gel. The heat storage capsule 10 has a W/O/W three-layer structure

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