

What is phase change material (PCM)?

Phase change material (PCM) is a material that can change its state from solid to liquid and vice versa by releasing and storing thermal energy. The process is depending on the surrounding temperature, in which the PCM will be in liquid state when the temperature exceeds its melting temperature as the heat absorbed.

What is a phase change material?

Phase change materials (or PCMs) are materials that absorb and release large amounts of energy when they change phases, for example from solid to liquid or liquid to gas, to provide the stored energy for heating or cooling a system. In most cases, the change of matter happens between solid to liquid.

Are phase change materials a good thermal energy storage media?

In recent years, phase change materials (PCMs) have become an interesting research area due to their advantages especially in thermal energy storage (TES). Indeed, there are a large number of PCMs that melt and solidify over a wide temperature range, making them interesting thermal energy storage media in several applications.

What types of phase change materials are used in latent heat storage?

Phase change materials can be classified into solid-solid, solid-liquid, solid-gas, and liquid-gas materials, as shown in Fig. 2. Solid-liquid phase change materials (PCMs), including organic, inorganic, and eutectic types, are the most suitable for latent heat storage (LHS) applications.

Currently, there is great interest in producing thermal energy (heat) from renewable sources and storing this energy in a suitable system. The use of a latent heat storage (LHS) system ...

Types of Phase Change Materials  
 How Do Phase Change Materials Work?  
 Applications of Phase Change Materials  
 Advantages of Using PCMs  
 Challenges of Using PCMs  
 Conclusion  
 Frequently Asked Questions  
 Reference  
 PCMs can be used in many different industries because they are so flexible. Here are some of the most common uses:  
 Buildings: PCMs are used in walls, floors and ceilings to maintain indoor temperatures. They absorb heat during the day and release it at night. For example, paraffin wax and salt hydrates are used in building materials. Solar energy s...  
 See more on thermtest .iacfm  
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[data-wptds-carousel-item]:last-of-type{ scroll-snap-align:end}[data-wptds-carousel][data-default][data-variant
="FullWidth"]
                                [data-wptds-carousel-scroll-container]{ scroll-snap-type:x
mandatory}[data-wptds-carousel][data-default][data-variant="FullWidth"]
[data-wptds-carousel-item]{ inline-size:100%;scroll-snap-align:center;scroll-snap-stop:always}[data-wptds-car
ousel][data-default][data-variant="FullWidth"]
[data-wptds-carousel-item]:first-of-type{ scroll-snap-align:start}[data-wptds-carousel][data-default][data-variant="FullWidth"]
[data-wptds-carousel-item]:last-of-type{ scroll-snap-align:end}[data-wptds-carousel][data-default][data-variant
="FullWidth"]
[data-wptds-carousel-item]>*{ inline-size:100%}[data-wptds-carousel][data-default][data-bleed-inline]
[data-wptds-carousel-controls]{ --control-side-gap:.25rem;inline-size:calc(100%
(var(--control-side-gap)*2));transform:translateX(calc(0rem
+
var(--control-side-gap)))
translateY(-50%)}[data-wptds-carousel][data-desktop]
[data-wptds-carousel-control]:hover:not([aria-disabled="true"]):not(:active){ --wptds-carousel-control-bg-color
:#fff;--wptds-carousel-control-border-color:#ddd;--wptds-carousel-control-box-shadow:0rem
.125rem
.3125rem
rgba(0,0,0,.14);--wptds-carousel-control-fg-color:#111}[data-wptds-carousel][data-desktop][data-variant="No
rml"];has([data-wptds-carousel-scroll-container]:hover),[data-wptds-carousel][data-desktop][data-variant="N
ormal"];has([data-wptds-carousel-control]:hover),[data-wptds-carousel][data-desktop][data-variant="FullWidt
h"];has([data-wptds-carousel-scroll-container]:hover),[data-wptds-carousel][data-desktop][data-variant="Full
Width"];has([data-wptds-carousel-control]:hover){ --wptds-carousel-control-opacity:1}[dir="rtl"]
[data-wptds-carousel][data-default]
[data-wptds-carousel-controls]{ transform:translateX(calc(0rem
+
(var(--wptds-carousel-control-size)/2)))
translateY(-50%)}[dir="rtl"]
[data-wptds-carousel][data-default]
[data-wptds-carousel-control][data-direction="start"]>svg{ transform:scaleX(-1)}[dir="rtl"]
[data-wptds-carousel][data-default]
[data-wptds-carousel-control][data-direction="end"]>svg{ transform:scaleX(1)}[dir="rtl"]
[data-wptds-carousel][data-default][data-bleed-inline]
[data-wptds-carousel-controls]{ transform:translateX(calc(0rem
-
var(--control-side-gap)))
translateY(-50%)} .b_dark
[data-wptds-carousel][data-default]{ --wptds-carousel-control-bg-color:#484644;--wptds-carousel-control-bord
er-color:#545250;--wptds-carousel-control-box-shadow:0rem
.125rem
.1875rem
rgba(0,0,0,.1);--wptds-carousel-control-fg-color:#d2d0ce} .b_dark
[data-wptds-carousel][data-default]
[data-wptds-carousel-control]:active,.b_drk
[data-wptds-carousel-control]:active{ --wptds-carousel-control-bg-color:#484644;--wptds-carousel-control-bor
der-color:#545250;--wptds-carousel-control-box-shadow:0rem
.125rem
.1875rem
rgba(0,0,0,.1);--wptds-carousel-control-fg-color:#d2d0ce} .b_dark
[data-wptds-carousel][data-desktop]
[data-wptds-carousel-control]:hover:not([aria-disabled="true"]):not(:active),.b_drk
[data-wptds-carousel][data-desktop]
[data-wptds-carousel-control]:hover:not([aria-disabled="true"]):not(:active){ --wptds-carousel-control-bg-color
:#605e5c;--wptds-carousel-control-border-color:#545250;--wptds-carousel-control-box-shadow:0rem
.125rem
.3125rem
rgba(0,0,0,.14);--wptds-carousel-control-fg-color:#faf9f8} .gs_card
.iacfic
.iacfmit

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