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Global Phase Change Materials (PCM) for Cooling Supply, Demand and Key Producers, 2026-2032

https://marketpublishers.com/r/G8477ABDA874EN.html
Date: July 2026
Pages: 152
Price: US$ 4,480.00 (Single User License)
ID: G8477ABDA874EN

Abstracts

The global Phase Change Materials (PCM) for Cooling market size is expected to reach $ 1767 million by 2032, rising at a market growth of 11.0% CAGR during the forecast period (2026-2032).

Phase Change Materials (PCM) for Cooling are substances that absorb, store, and release large amounts of latent heat during phase transitions?typically from solid to liquid and vice versa?at specific temperatures. These materials are engineered to maintain a near-constant temperature while absorbing heat, making them ideal for thermal energy storage and temperature regulation applications. PCMs used for cooling can be organic (like paraffins or fatty acids), inorganic (such as salt hydrates), or eutectic mixtures, each offering varying thermal conductivity, stability, and energy storage capacity. They are widely utilized in passive cooling systems, cold chain logistics, HVAC systems, building insulation, electronics thermal management, and personal cooling products. Key characteristics include phase transition temperature range (commonly between 0?C and 30?C for cooling applications), high latent heat capacity (typically 150?250?kJ/kg), non-toxicity, and long cycle stability.

Phase Change Materials (PCMs) for cooling applications typically feature a phase change temperature range between -20?C and +30?C, tailored to use cases such as vaccine transport, HVAC systems, or personal cooling. These materials possess a latent heat of fusion between 150 and 250?kJ/kg, enabling efficient thermal energy storage during melting and solidification. They generally exhibit thermal conductivity between 0.2 and 0.6?W/m?K, density ranging from 800 to 1,500?kg/m?, and specific heat capacity of 1.8 to 2.5?kJ/kg?K. Most PCMs maintain stable performance over 1,000+ thermal cycles, with a melting/freezing point hysteresis of less than 2??C, ensuring predictable energy release. Volume expansion during phase transition typically

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ranges from 5% to 15%, requiring compatible encapsulation. PCMs can be formulated as salt hydrates, paraffin waxes, fatty acids, or bio-based compounds, and are offered in bulk, macroencapsulated (e.g., pouches, panels), or microencapsulated (e.g., textile coatings)forms, depending on application requirements.

This report studies the global Phase Change Materials (PCM) for Cooling production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for Phase Change Materials (PCM) for Cooling and provides market size (US$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of Phase Change Materials (PCM) for Cooling that contribute to its increasing demand across many markets.

Highlights and key features of the study
Global Phase Change Materials (PCM) for Cooling total production and demand, 2021-2032, (Kilotons)
Global Phase Change Materials (PCM) for Cooling total production value, 2021-2032, (USD Million)
Global Phase Change Materials (PCM) for Cooling production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (Kilotons), (based on production site)
Global Phase Change Materials (PCM) for Cooling consumption by region & country, CAGR, 2021-2032 & (Kilotons)
U.S. VS China: Phase Change Materials (PCM) for Cooling domestic production, consumption, key domestic manufacturers and share
Global Phase Change Materials (PCM) for Cooling production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (Kilotons)
Global Phase Change Materials (PCM) for Cooling production by Type, production, value, CAGR, 2021-2032, (USD Million) & (Kilotons)
Global Phase Change Materials (PCM) for Cooling production by Application, production, value, CAGR, 2021-2032, (USD Million) & (Kilotons)

This report profiles key players in the global Phase Change Materials (PCM) for Cooling market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Rubitherm, BASF, Outlast Technologies, Climator, PCM Products, Phase Change Energy Solutions, EMCOOL,

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Croda International, Entropy Solutions, Pluss Advanced Technologies, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World Phase Change Materials (PCM) for Cooling market

Detailed Segmentation:

Each section contains quantitative market data including market by value (US$ Millions), volume (production, consumption) & (Kilotons) and average price (US$/Ton) by manufacturer, by Type, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global Phase Change Materials (PCM) for Cooling Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

Rest of World

Global Phase Change Materials (PCM) for Cooling Market, Segmentation by Type:

Organic PCMs

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Inorganic PCMs

Global Phase Change Materials (PCM) for Cooling Market, Segmentation by Application:

Cold Chain Logistics

HVAC Systems

Battery Cooling

Others

Companies Profiled:

Rubitherm

BASF

Outlast Technologies

Climator

PCM Products

Phase Change Energy Solutions

EMCOOL

Croda International

Entropy Solutions

Pluss Advanced Technologies

Cold Chain Technologies

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Cristopia Energy Systems

RGEES

Va-Q-tec

Honeywell

GreenTEG

Thermavance Technologies

Key Questions Answered:
1. How big is the global Phase Change Materials (PCM) for Cooling market?
2. What is the demand of the global Phase Change Materials (PCM) for Cooling market?
3. What is the year over year growth of the global Phase Change Materials (PCM) for Cooling market?
4. What is the production and production value of the global Phase Change Materials (PCM) for Cooling market?
5. Who are the key producers in the global Phase Change Materials (PCM) for Cooling market?
6. What are the growth factors driving the market demand?

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