

Microencapsulated Paraffin Phase Change Materials Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2025 - 2034

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Report description:

The Global Microencapsulated Paraffin Phase Change Materials Market was valued at USD 257.5 million in 2024 and is projected to expand at a CAGR of 6.6% between 2025 and 2034. Microencapsulated PCMs are increasingly being adopted across various sectors, particularly in construction, due to their ability to efficiently store and release thermal energy. These materials are widely used in applications such as waste heat recovery, room heating and cooling, and solar water heating systems. As construction activities continue to grow globally, particularly with large-scale projects underway in both developed and emerging markets, the demand for PCMs is expected to rise significantly.

The market is segmented by end-user industries, including building and construction, HVAC, electronics, textiles, healthcare, aerospace, automotive, packaging, chemicals, and others. Among these, the building and construction sector holds the largest share, generating USD 74.4 million in revenue in 2024 and expected to grow to USD 154.8 million by 2034. In the construction industry, PCMs are integrated into building materials to enhance thermal mass, improving temperature regulation and energy efficiency in buildings. One of the key advantages of incorporating microencapsulated PCMs into structures is their ability to store excess heat and release it when needed, thus reducing the need for external heating and cooling systems. This application plays a significant role in reducing energy consumption and carbon footprints, making it a preferred choice for sustainable construction.

In addition to construction, PCMs are being explored for a range of other applications. In the HVAC industry, they contribute to energy savings by regulating temperature fluctuations and optimizing system performance. The packaging industry is also benefiting from the use of PCMs, particularly in temperature-sensitive shipments, where maintaining a consistent temperature is crucial. Furthermore, the healthcare industry increasingly utilizes PCMs for thermal management in medical devices and protective equipment, ensuring optimal conditions during storage and transport.

U.S. microencapsulated paraffin phase change materials market was valued at USD 55.7 million in 2024 and is driven by the growing emphasis on energy-efficient buildings and sustainable construction practices. Energy-saving regulations and green

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building standards, such as LEED certification, motivate the adoption of PCMs to improve building insulation and energy performance. Additionally, the increasing use of PCMs in renewable energy storage solutions and advanced HVAC systems further supports their market growth. The expanding role of PCMs in industries such as healthcare and automotive is expected to continue driving demand, highlighting their versatile applications across multiple sectors.

Table of Contents:

Report Content

Chapter 1 Methodology & Scope

- 1.1 Market scope & definition
- 1.2 Base estimates & calculations
- 1.3 Forecast calculation
- 1.4 Data sources
 - 1.4.1 Primary
 - 1.4.2 Secondary
 - 1.4.2.1 Paid sources
 - 1.4.2.2 Public sources

Chapter 2 Executive Summary

- 2.1 Industry synopsis, 2021-2034

Chapter 3 Industry Insights

- 3.1 Industry ecosystem analysis
 - 3.1.1 Factor affecting the value chain
 - 3.1.2 Profit margin analysis
 - 3.1.3 Disruptions
 - 3.1.4 Future outlook
 - 3.1.5 Manufacturers
 - 3.1.6 Distributors
- 3.2 Supplier landscape
- 3.3 Profit margin analysis
- 3.4 Key news & initiatives
- 3.5 Regulatory landscape
- 3.6 Impact forces
 - 3.6.1 Growth drivers
 - 3.6.1.1 Increasing product acceptance in the textile industry
 - 3.6.1.2 Regulations regarding minimizing greenhouse gas emissions
 - 3.6.1.3 Growing building & construction industry in Asia Pacific
 - 3.6.2 Industry pitfalls & challenges
 - 3.6.2.1 Growing popularity of bio-based phase change materials
 - 3.6.2.2 Procurement risk and high prices of raw materials
- 3.7 Growth potential analysis
- 3.8 Porter's analysis
- 3.9 PESTEL analysis

Chapter 4 Competitive Landscape, 2024

- 4.1 Introduction
- 4.2 Company market share analysis
- 4.3 Competitive positioning matrix

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4.4 Strategic outlook matrix

Chapter 5 Market Size and Forecast, By End Use, 2021-2034 (USD Million) (Kilo Tons)

5.1 Key trends

5.2 Building & construction

5.3 HVAC

5.4 Electrical & electronics

5.5 Packaging

5.6 Textiles

5.7 Chemical industries

5.8 Healthcare

5.9 Aerospace & automotive

5.10 Others

Chapter 6 Market Size and Forecast, By Region, 2021-2034 (USD Million) (Kilo Tons)

6.1 Key trends

6.2 North America

6.2.1 U.S.

6.2.2 Canada

6.3 Europe

6.3.1 UK

6.3.2 Germany

6.3.3 France

6.3.4 Italy

6.3.5 Spain

6.3.6 Russia

6.4 Asia Pacific

6.4.1 China

6.4.2 India

6.4.3 Japan

6.4.4 South Korea

6.4.5 Australia

6.5 Latin America

6.5.1 Brazil

6.5.2 Mexico

6.6 MEA

6.6.1 South Africa

6.6.2 Saudi Arabia

6.6.3 UAE

Chapter 7 Company Profiles

7.1 Andores New Energy

7.2 BASF

7.3 Microtek Laboratories

7.4 Rubitherm

7.5 Raha Paraffin

7.6 Tempered Entropy

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