

The Global Market for Phase Change Materials

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Abstracts

Phase Change Materials (PCMs) are wax-like thermal compounds that change phase at a specifically formulated temperature. A wide range of PCMs have been developed including organic (paraffins and fatty acids), inorganics (salt hydrates and metallic) and eutectic combination of organic and/or inorganic materials. Thermal energy storage using PCMs is an effective way to store thermal energy, and makes them attractive for sustainable, environmentally friendly solutions. PCMs store thermal energy in the form of latent heat and provide maximum energy performance with minimal impact on the environment.

Latent heat energy storage (LHES) system PCMs are well known for its excellent thermal energy storage and release during melting and solidifications respectively, and are a key solution for the implementation of renewable energies. PCMs can be efficiently deployed in applications where significant temperature difference exists in the system for intermittent thermal energy storage. These systems take advantage of the latent heat of phase change of PCM during their melting/ solidification processes to store or release heat depending on the needs and availability.

PCM products are used to improve whole-building energy efficiency in retail, commercial, hospitality, and industrial applications; enable safe transport of sensitive food and pharmaceutical products; and provide enhanced thermal storage capabilities for industrial and commercial processes, among other applications.

Markets where PCMs are applied include:

buildings for thermal management.

cement and pavements.

heat pumps.

electronic devices.

solar power plants.

cooling vests and clothing in medical and textiles.

thermal management in electric vehicle batteries.

thermal batteries.

refrigerated packaging and transport.

Report contents include:

Types of phase change materials, properties, advantages, drawbacks. Types covered include paraffins, non-paraffins, salt and salt composites, metal and metal alloys, biobased, nanomaterials based.

Patent analysis.

Markets for phase change materials including aerospace, automotive, building and construction, energy, electronics, medical, food and drink, packaging, shipping, solar thermal systems, textiles and apparel.

Global revenues for phase change materials by type, market and region.

47 In depth company profiles including types produced, products, target markets, production capabilities, contact details. Companies profiled include Advanced Cooling Technologies, Axiotherm GmbH, Boyd Corporation, HeatVentors, Croda, Encapsys LLC, Hangzhou Ruhr New Material Technology Co., Ltd. and many more.

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5.7 Bodle Technologies Ltd.

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5.9 CCT Energy Storage

5.10 Climator Sweden AB

5.11 Cowa Thermal Solutions AG

5.12 Croda Europe Ltd.

5.13 Cryopak

5.14 Datum Phase Change Ltd

5.15 Devan Chemicals NV

5.16 Encapsys LLC

5.17 Enesoon New Energy Co. Ltd

5.18 Ewald Dörken AG

5.19 Global-E-Systems Europe

- 5.20 Hangzhou Ruhr New Material Technology Co., Ltd.
- 5.21 HeatVentors
- 5.22 Henkel AG & Co. KGAA
- 5.23 Insolcorp LLC
- 5.24 Inuteq
- 5.25 Microtek Laboratories, Inc.
- 5.26 Parker Hannifin Corporation
- 5.27 PCM Technology
- 5.28 Phase Change Material Products Ltd.
- 5.29 Pelican BioThermal LLC
- 5.30 Phase Change Products Pty Ltd (PCP)
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