Cryogenic Insulation Market Report and Forecast 2025-2034

Market Report | 2025-07-21 | 150 pages | EMR Inc.

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Report description:

The global cryogenic insulation market is expected to grow at a CAGR of 7.70% during the period 2025-2034. North America, Europe and Asia are likely to be key markets.

Global Market Likely to be Driven by Multiple Applications and Rising Demand for LNG

Rising global demand for liquefied natural gas (LNG) warrants high-performance technology for reliable transport and storage. Safe and efficient plants need be designed and developed. Extremely low temperatures ranging from -161 to -164 0 C (112 to 109 K), at which natural gas is in a liquid state, places high demands on the technical infrastructure throughout the LNG value chain. All plant components and systems that come into contact with liquefied gas need to be very well insulated. This particularly includes pipework through which LNG is transported, and tanks liquefied gas storage. It is vital that tanks and pipework are adequately insulated from adjoining plant elements due to low temperature of the liquefied gas. This is also applicable to points at which mechanical forces need to be absorbed, including mounts or support bearings. Thermal bridges at such points must be avoided; doing so warrants high-performance cryogenic insulation materials that do not become brittle, are capable of absorbing high mechanical forces, and offer very low thermal conductivity.

Solutions by Leading Companies and Multiple Applications Expected to Drive Market Growth

Leading companies offer materials for cryogenic insulation; such solutions are expected to drive the global cryogenic insulation market. For example, Rochling offers materials specifically developed for cryogenic insulation. The company's laminated densified wood Lignostone cryogenic and fibre-reinforced composite material Durolight have been successfully applied in several projects. Owing to their distinct properties, the solutions enable safe and reliable LNG transport and storage.

Lignostone cryogenic and Durolight reliably avoid thermal bridges, possess high mechanical stability, enable efficient transport and storage of LNG, are robust and low-maintenance, and have been approved/specified by several companies. Applications of cryogenic insulation materials include Ships (storage tanks, fuel tanks and pipe systems), Terminals (pipe systems, storage tanks

and terminals), and Offshore (floating LNG and LPG ships, and bunkering tank supports).

ISOVER has developed the unique CRYOLENE solution for the insulation of cryogenic tank walls and roofs. CRYOLENE products are highly resilient mineral wool rolls designed to retain fibre elasticity over time at temperatures ranging from -170 0 C to +120 0 C.

Norplex-Micarta cryogenic insulation materials are engineered and produced particularly for very cold temperature applications in the energy, aerospace, medical and scientific devices, and heavy industry. NP500CR, a specially formulated glass-epoxy sheet material, is appropriate when requirement of superior thermal insulation and structural support unite with cryogenic temperatures. Due to its low moisture absorption, NP500CR could tolerate cycling between low and high temperatures better than several other options. Applications include LNG pipe systems, land, over the road, and ship bunkering tanks to superconducting magnets and fusion reactor insulation.

RT521M, another glass-epoxy material, is a cryogenic rated tube present in different medical and scientific devices, as well as multiple industrial applications for cryogenic storage.

MC330, a cotton-phenolic sheet grade, is a cryogenic material devised for use in applications where abrasiveness or hardness of glass reinforced materials is an issue to designers.

Rising Demand for LNG Expected to Drive Market Growth

LNG is natural gas which when liquefied, has only 1/600 of its volume in a gaseous state. To liquefy, the natural gas is cooled down to -164 0 C. This reduction in volume makes LNG ideal for efficient transport and storage. Low LNG temperatures place high demands on plant components and the equipment employed for storage and transport of LNG (such as pipework systems carrying LNG, and tanks storing LNG). These pipes and tanks need to be permanently thermally insulated from adjoining plant components. This warrants cryogenic insulation. Rising LNG demand is expected to boost the global cryogenic insulation market. Growing demand for LNG, especially in Asia, is expected to boost market growth. In 2021, USA led export growth with a year-on-year increase of over 23 million mt. In 2021, China and South Korea led growth in LNG demand.

Market Segmentation

The EMR's report titled "Rising LNG demand Market Report and Forecast 2025-2034 offers a detailed analysis of the market based on the following segments:

By type, the market is segmented into:

- PU And PIR
- Cellular Glass
- Polystyrene
- Fiberglass
- Perlite
- Others

By cryogenic equipment, the market is classified into:

- Tanks
- Valves
- Vaporizers

- Pumps
- Others

By end use industry, the market is divided into:

- Energy and Power
- Chemicals
- Metallurgical
- Electronics
- Shipping
- Others

By region, the market is segmented into:

- North America
- Europe
- Asia Pacific
- Latin America
- Middle East and Africa

Key Industry Players in the Market

The report presents a detailed analysis of the following key players in the global cryogenic insulation market, looking into their capacity, and latest developments like capacity expansions, plant turnarounds, and mergers and acquisitions:

- Armacell LLC
- Lydall, Inc.
- BASF SE
- Cabot Corporation
- Rochling SE & Co. KG
- Johns Manville
- Others

The EMR report gives an in-depth insight into the industry by providing a SWOT analysis as well as an analysis of Porter's Five Forces model.

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