

Cyclopentane Market ? Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Application (Residential Refrigerators, Commercial Refrigerators, Insulated Containers & Sippers, Insulating Construction Materials, Electrical & Electronics, Personal Care Products, Fuel & Fuel Additives and Others), By Function (Blowing Agent & Refrigerant, Solvent & Reagent and Others), By Region & Competition, 2021-2031F

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Abstracts

The Global Cyclopentane Market is projected to grow from USD 497.95 Million in 2025 to USD 743.53 Million by 2031, achieving a CAGR of 6.91%. As a vital blowing agent for rigid polyurethane foams, cyclopentane is widely used in residential refrigeration and commercial construction insulation. This growth is primarily fueled by international regulations like the Montreal Protocol, which enforce the phase-out of high-global-warming-potential hydrofluorocarbons (HFCs), alongside rising demand for energy-efficient cold chain logistics. Highlighting this trend, the Global Cold Chain Alliance noted that the top 25 cold storage operators expanded their capacity by 606 million cubic feet in 2024, emphasizing the need for effective insulation.

Despite strong demand, the market faces significant hurdles due to the compound's high flammability, which necessitates substantial investment in explosion-proof machinery and strict safety protocols. These capital-intensive safety requirements raise operational costs and barriers to entry, often discouraging smaller producers in developing economies from switching to cyclopentane. Consequently, many smaller manufacturers remain reliant on less hazardous but environmentally damaging legacy

blowing agents, slowing the broader transition to sustainable alternatives.

Market Driver

A primary catalyst for the cyclopentane market is the escalating global demand for residential and commercial refrigeration appliances, where manufacturers utilize the chemical to produce energy-efficient polyurethane foam insulation. Major industry players are expanding operations to meet this need; for instance, Haier Smart Home reported that its refrigeration segment generated RMB 83.56 billion in global revenue in 2024. This growth is further reflected in trade volumes, with the China Household Electrical Appliances Association reporting a 19.1% year-on-year increase in refrigerator exports from China, totaling 47.68 million units between January and November 2024.

Simultaneously, international environmental mandates like the Kigali Amendment to the Montreal Protocol are driving a structural shift toward low-global-warming-potential (GWP) alternatives such as cyclopentane by accelerating the phase-out of HCFCs and HFCs. These strict reduction schedules are successfully lowering reliance on older chemicals, as evidenced by the European Environment Agency's report that EU-27 HFC consumption in 2024 was 60% below target levels. This regulatory pressure cements cyclopentane as the preferred long-term substitute for foam blowing applications, ensuring market stability despite safety challenges.

Market Challenge

The main obstacle restricting the global cyclopentane market is the compound's inherent high flammability, which imposes severe safety risks and financial burdens. To mitigate combustion hazards, manufacturers must invest heavily in specialized explosion-proof processing machinery and rigorous safety infrastructure. Unlike non-flammable alternatives, utilizing cyclopentane requires a complex operational environment, significantly increasing production costs and establishing a high barrier to entry for potential market participants.

These capital-intensive requirements limit market access, particularly for smaller enterprises in developing regions that lack the resources to transition from legacy blowing agents. The high costs associated with compliance and infrastructure upgrades restrict supply chain diversity and keep the market concentrated among larger players. This financial strain is reflected in broader industry trends, with the American Chemistry Council reporting a 4.1% rise in chemical sector capital spending to \$34 billion in 2024,

a threshold that effectively prevents smaller competitors from adopting cyclopentane.

Market Trends

Suppliers are increasingly introducing renewable and low-carbon cyclopentane product lines, such as ISCC PLUS certified mass-balanced variants derived from biomass, to align with corporate sustainability goals. This innovation allows end-users to reduce Scope 3 carbon emissions without modifying their existing foaming processes. For example, Haltermann Carless announced in August 2025 that it secured ISCC PLUS recertification for its mass-balanced bio-circular cyclopentane, ensuring a verified supply chain for low-carbon insulation markets.

Concurrently, a growing trend involves the integration of cyclopentane-blown foams into thermal management systems for electric vehicle (EV) batteries. Automotive manufacturers are adopting these lightweight foams to create thermal barriers that prevent thermal runaway and enhance battery efficiency, expanding demand beyond traditional appliances. This niche is growing alongside the electric mobility sector; according to Just Auto, sales of new energy vehicles in China rose 29% year-on-year to 944,000 units in January 2025, driving the need for advanced automotive thermal insulation.

Key Market Players

HCS Group GmbH

Chevron Phillips Chemical Company LLC

INEOS Group Limited

Zeon Corporation

LG Chem Ltd.

South Hampton Resources, Inc.

Maruzen Petrochemical Co., Ltd.

YEOCHUN NCC Co., Ltd.

DYMATIC Chemicals, Inc.

Haldia Petrochemicals Ltd.

Report Scope

In this report, the Global Cyclopentane Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Cyclopentane Market, By Application

Residential Refrigerators

Commercial Refrigerators

Insulated Containers & Sippers

Insulating Construction Materials

Electrical & Electronics

Personal Care Products

Fuel & Fuel Additives and Others

Cyclopentane Market, By Function

Blowing Agent & Refrigerant

Solvent & Reagent and Others

Cyclopentane Market, By Region

North America

United States

Canada

Mexico

Europe

France

United Kingdom

Italy

Germany

Spain

Asia Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Cyclopentane Market.

Available Customizations:

Global Cyclopentane Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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