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Global Dielectric Coolants for Data Centers Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global Dielectric Coolants for Data Centers market size was valued at US$ 1250 million in 2025 and is forecast to a readjusted size of US$ 1813 million by 2032 with a CAGR of 4.6% during review period.

Dielectric coolants for data centers are electrically insulating thermal management fluids designed for high-power servers, AI accelerators, high-performance computing clusters, and cloud computing infrastructure. Their core function is to rapidly transfer the high thermal loads generated by CPUs, GPUs, ASICs, power modules, memory, and entire server systems to heat exchange loops without causing electrical short circuits or corrosion risks, thereby addressing the limitations of traditional air cooling in rack power density, energy consumption, noise, space utilization, and hotspot control. These products are typically based on synthetic hydrocarbons, polyalphaolefins, synthetic esters, natural esters, silicone-based materials, or fluorinated fluids, and are differentiated through purification, additive design, viscosity control, flash point control, dielectric strength control, material compatibility validation, and long-term oxidation stability assessment. Typical applications include single-phase immersion cooling, two-phase immersion cooling, selected direct-to-chip liquid cooling, and server-level precision liquid cooling. Major customers include data center operators, cloud service providers, server manufacturers, liquid cooling system suppliers, AI computing centers, and cryptocurrency computing facilities.

The industrial value of dielectric coolants for data centers is expanding from a single thermal material into a core enabling component for high-density computing infrastructure. As AI training, inference services, high-performance computing, and cloud data processing impose higher power requirements on servers, traditional air-

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cooling systems are increasingly approaching their limits in heat exchange efficiency, energy control, space utilization, and noise management. Dielectric coolants directly contact key heat-generating server components and transfer heat from the source to external heat exchange systems while maintaining electrical insulation and material compatibility. This enables data centers to operate at higher rack power densities. The technical evaluation of these products is no longer limited to thermal conductivity, but also includes viscosity, flash point, dielectric strength, oxidation stability, volatility, sealing material compatibility, and fluid condition changes after long-term operation. As liquid-cooled servers move from pilot deployment into scaled validation, dielectric coolants will become an important material affecting data center reliability, energy efficiency, and operating cost.

In terms of product structure, dielectric coolants for data centers are developing in parallel across single-phase immersion, two-phase immersion, direct-to-chip auxiliary fluids, and precision liquid cooling fluids. Single-phase immersion coolants emphasize system simplicity, low maintenance, high flash point, and material stability, making them suitable for tank immersion, rack-based immersion, and selected edge computing deployments. Two-phase immersion coolants use boiling and condensation cycles to achieve higher heat flux transfer, making them suitable for extremely high power density scenarios, but they impose higher requirements on sealed systems, fluid replenishment, environmental compliance, and fluid recovery. At the same time, bio-based esters, PFAS-free synthetic fluids, low-GWP fluorinated liquids, and highly stable PAO systems are becoming major directions for new product development. This reflects an industry shift from purely pursuing cooling efficiency toward a broader balance among safety, sustainability, compliance, and life-cycle cost. In the future, customers will rely more on system-level certification, server material compatibility data, and long-term operating validation when selecting coolants, rather than judging by a single physical property.

From the perspective of competition and regional structure, the supply of dielectric coolants for data centers is evolving from a market led by specialty chemical and lubricant companies in Europe and North America into one with growing participation from Japan, South Korea, China, and Southeast Asia. Traditional chemical companies have strengths in base fluid synthesis, purification, formulation, and global supply. Lubricant companies have advantages in thermal stability, oxidation control, and customer service systems, while fluorochemical companies have technical know-how in low-boiling-point, low-viscosity, and highly insulating fluids. The growth logic in Asia is becoming clearer because AI computing infrastructure, cloud service expansion, advanced manufacturing data centers, and local liquid cooling ecosystems are advancing at the same time. As large data centers place higher requirements on energy

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use, water consumption, carbon emissions, and operational reliability, coolant suppliers will move from simply selling fluids toward providing formulation adaptation, system validation, operational monitoring, recovery and regeneration, and long-term services. Industry competition will shift from price competition to performance, certification, supply stability, and ecosystem integration.

This report is a detailed and comprehensive analysis for global Dielectric Coolants for Data Centers market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Phase Change Mechanism and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global Dielectric Coolants for Data Centers market size and forecasts, in consumption value ($ Million), sales quantity (Tons), and average selling prices (US$/Ton), 2021-2032

Global Dielectric Coolants for Data Centers market size and forecasts by region and country, in consumption value ($ Million), sales quantity (Tons), and average selling prices (US$/Ton), 2021-2032

Global Dielectric Coolants for Data Centers market size and forecasts, by Phase Change Mechanism and by Application, in consumption value ($ Million), sales quantity (Tons), and average selling prices (US$/Ton), 2021-2032

Global Dielectric Coolants for Data Centers market shares of main players, shipments in revenue ($ Million), sales quantity (Tons), and ASP (US$/Ton), 2021-2026

The Primary Objectives in This Report Are:

To determine the size of the total market opportunity of global and key countries

To assess the growth potential for Dielectric Coolants for Data Centers

To forecast future growth in each product and end-use market

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To assess competitive factors affecting the marketplace

This report profiles key players in the global Dielectric Coolants for Data Centers market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include 3M Company, Engineered Fluids, Inc., The Chemours Company, Solstice Advanced Materials Inc., Dow Inc., Exxon Mobil Corporation, Shell plc, BP p.l.c., Chevron Phillips Chemical Company LLC, Cargill, Incorporated, etc.

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

Market Segmentation

Dielectric Coolants for Data Centers market is split by Phase Change Mechanism and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Phase Change Mechanism, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Phase Change Mechanism

Single Phase

Two Phase

Market segment by Base Material

Mineral Oil Based

Polyalphaolefin Based

Synthetic Ester Based

Natural Ester Based

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Silicone Based

Other

Market segment by Environmental Attribute

PFAS-Based

PFAS-Free Petrochemical-Based

Other

Market segment by Application

AI Training Data Centers

High-Performance Computing Clusters

Cloud Computing Data Centers

Other

Major players covered

3M Company

Engineered Fluids, Inc.

The Chemours Company

Solstice Advanced Materials Inc.

Dow Inc.

Exxon Mobil Corporation

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Shell plc

BP p.l.c.

Chevron Phillips Chemical Company LLC

Cargill, Incorporated

Perstorp AB

TotalEnergies SE

FUCHS SE

Valvoline Global Operations

Petroliam Nasional Berhad (PETRONAS)

Oleon NV

Daikin Industries, Ltd.

ENEOS Corporation

UBE Corporation

SK Enmove Co., Ltd.

GS Caltex Corporation

S-OIL Corporation

Quzhou Deyu Technology Co., Ltd.

Zhejiang Lihua New Materials Technology Co., Ltd.

Inventec Performance Chemicals

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TCLAD Inc.

Market segment by region, regional analysis covers

North America (United States, Canada, and Mexico)

Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)

Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)

South America (Brazil, Argentina, Colombia, and Rest of South America)

Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

The content of the study subjects, includes a total of 15 chapters:

Chapter 1, to describe Dielectric Coolants for Data Centers product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of Dielectric Coolants for Data Centers, with price, sales quantity, revenue, and global market share of Dielectric Coolants for Data Centers from 2021 to 2026.

Chapter 3, the Dielectric Coolants for Data Centers competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the Dielectric Coolants for Data Centers breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Phase Change Mechanism and by Application, with sales market share and growth rate by Phase Change Mechanism, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales

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quantity, consumption value, and market share for key countries in the world, from 2021 to 2026.and Dielectric Coolants for Data Centers market forecast, by regions, by Phase Change Mechanism, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of Dielectric Coolants for Data Centers.

Chapter 14 and 15, to describe Dielectric Coolants for Data Centers sales channel, distributors, customers, research findings and conclusion.

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