

# Cold-Chain Delivery Market Forecasts to 2034 – Global Analysis By Temperature Type (Chilled (

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## Abstracts

According to Statistics MRC, the Global Cold-Chain Delivery Market is accounted for \$112.6 billion in 2026 and is expected to reach \$386.5 billion by 2034 growing at a CAGR of 16.6% during the forecast period. Cold-chain delivery encompasses temperature-controlled supply chain solutions designed to preserve the integrity of perishable goods, including food, pharmaceuticals, and chemicals. It integrates refrigeration equipment, insulated packaging, real-time monitoring systems, and logistics services to maintain specific temperature ranges from chilled to deep cold. Built to ensure product safety, regulatory compliance, and reduced spoilage, cold-chain delivery enables industries to transport sensitive products globally. This system contributes significantly to reducing waste, improving healthcare outcomes through vaccine distribution, and supporting just-in-time supply models across multiple sectors.

Market Dynamics:

Driver:

Growing demand for temperature-sensitive pharmaceuticals

Biologics require strict temperature control between 2°C and 8°C, while advanced gene therapies demand cryogenic conditions below –60°C. The global rollout of mRNA vaccines and insulin analogues has further highlighted infrastructure gaps and opportunities. Pharmaceutical companies are investing in real-time tracking and IoT-

enabled cold boxes to ensure drug efficacy. Regulatory agencies are enforcing stricter Good Distribution Practices (GDP), pushing logistics providers to upgrade capabilities. As biopharmaceutical pipelines grow, cold-chain delivery becomes critical for patient safety and market access across developed and emerging economies.

#### Restraint:

##### High operational and infrastructure costs

Maintaining uninterrupted temperature control from manufacturing to last-mile delivery requires significant capital investment in refrigeration units, insulated containers, and temperature loggers. Energy costs for cold storage facilities and refrigerated vehicles remain volatile, compressing profit margins for logistics providers. In developing regions, inadequate power supply and poor road networks increase the risk of temperature excursions and product losses. Small and medium enterprises struggle to afford advanced monitoring systems and backup power solutions. Training personnel on proper handling procedures adds recurring expenses. These financial barriers limit market entry and slow the adoption of best-in-class cold-chain technologies, particularly in price-sensitive segments.

#### Opportunity:

##### Adoption of IoT and blockchain for real-time monitoring

Integrating Internet of Things (IoT) sensors and blockchain technology is transforming cold-chain visibility and traceability. Real-time temperature, humidity, and shock data can now be transmitted wirelessly, enabling proactive intervention during transit. Blockchain creates immutable records of each handoff, simplifying regulatory audits and reducing liability disputes. Logistics providers are leveraging predictive analytics to optimize routing and reduce energy consumption. Pharmaceutical giants are mandating digital temperature monitoring for all high-value shipments. As sensor costs decline and 5G coverage expands, even small-scale cold-chain operators can deploy smart tracking solutions.

#### Threat:

##### Vulnerability to extreme weather events

Climate change is increasing the frequency of heatwaves, floods, and storms, directly

threatening cold-chain reliability. Extreme heat accelerates refrigeration system failures, while floods damage warehouses and ground transport networks. Power outages during severe weather disrupt cold storage operations, potentially destroying millions of dollars worth of vaccines or fresh produce. Insurance premiums for temperature-sensitive cargo are rising, and liability claims are becoming more common. Without redundant systems and adaptive routing, companies face inventory write-offs and reputational damage. Regional infrastructure disparities exacerbate these risks, particularly in tropical and coastal zones where cold-chain density is already low.

### Covid-19 Impact

The pandemic created unprecedented demand for vaccine cold-chain logistics while disrupting conventional food supply chains. Lockdowns delayed equipment manufacturing and cross-border shipments of refrigerants and dry ice. However, COVID-19 accelerated investments in ultra-low-temperature freezers and last-mile delivery drones. Regulatory bodies issued emergency guidelines for temperature excursions, allowing some flexibility during crises. Post-pandemic, governments have prioritized cold-chain resilience through public-private partnerships. Digital temperature monitoring became standard practice, and nearshoring of cold storage facilities gained traction. The crisis permanently raised quality expectations and operational agility across the cold-chain delivery ecosystem.

The pharmaceuticals & biotechnology segment is expected to be the largest during the forecast period

The pharmaceuticals & biotechnology segment is expected to account for the largest market share during the forecast period, driven by the exponential growth of biologic drugs, vaccines, and cell therapies. These products mandate strict temperature ranges, with some requiring cryogenic conditions below  $-60^{\circ}\text{C}$ . The expansion of personalized medicine and biosimilars is further increasing shipment volumes. Hospitals and pharmacies are adopting specialized cold-chain packaging and real-time monitoring to comply with GDP standards. Emerging markets are scaling up vaccine cold-chain infrastructure through government immunization programs.

### The deep cold (

Over the forecast period, the deep cold (below  $-60^{\circ}\text{C}$ ) temperature segment is predicted to witness the highest growth rate, fueled by the rise of mRNA vaccines, CAR-T cell therapies, and gene editing products. These advanced biologics require cryogenic conditions using dry ice or liquid nitrogen, driving demand for specialized freezers and

dewars. Oncology clinical trials and personalized cell therapies are increasing deep-cold shipments globally. Logistics providers are developing lightweight, vacuum-insulated containers for extended hold times. Emerging trends include electric cryogenic reefers and cloud-based temperature mapping.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share, supported by infrastructure modernization and growing pharmaceutical imports. The UAE and Saudi Arabia are developing temperature-controlled logistics zones to become regional cold-chain hubs. Rising temperatures due to climate change make robust cooling systems essential for food safety. Governments are easing FDI regulations to attract cold-chain investments. The region is also witnessing rapid adoption of solar-powered refrigerators and IoT tracking for remote areas.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR, driven by rapid urbanization, expanding pharmaceutical manufacturing, and growing food export volumes. China, India, and Vietnam are investing heavily in cold-storage warehouses and refrigerated transport networks. Government initiatives support farm-to-fork cold chains for perishable produce and dairy. The region is also a hub for vaccine production, requiring reliable distribution to remote areas.

Key players in the market

Some of the key players in Cold-Chain Delivery Market include Americold Logistics, Lineage Logistics, DHL International GmbH, United Parcel Service, Maersk, CEVA Logistics, Kuehne + Nagel International, C.H. Robinson Worldwide, FedEx Corporation, Nippon Express, DB Schenker, XPO Logistics, AGRO Merchants Group, NewCold Advanced Cold Logistics, and VersaCold Logistics Services.

Key Developments:

In December 2025, Americold Realty Trust, a global leader in temperature-controlled logistics, real estate, and value-added services focused on the ownership, operation, acquisition, and development of temperature-controlled warehouses, today announced a new partnership with On the Run (“OTR”), one of Australia’s most recognized P&C brands. Americold will provide storage and distribution services to support OTR’s

supply chain in Adelaide and its rapid national expansion.

In March 2025, Lineage Logistics announced the acquisition of a network of cold-storage facilities in Southeast Asia, expanding its presence in emerging markets. The move strengthens cross-border temperature-controlled freight between Vietnam, Thailand, and China.

#### Temperature Types Covered:

- Chilled (
- Frozen (
- Deep Cold (

#### Components Covered:

- Solutions
- Services

#### Delivery Modes Covered:

- Roadways
- Railways
- Airways
- Sea/Waterways
- Multimodal Logistics

#### Service Types Covered:

- Dedicated Cold?Chain
- Shared Cold?Chain

Hybrid Solutions

Organization Sizes Covered:

Large Enterprises

Small & Medium Enterprises (SMEs)

End Users Covered:

Food & Beverages

Pharmaceuticals & Biotechnology

Chemicals & Specialty Materials

Cosmetics & Personal Care

Other End Users

Regions Covered:

North America

United States

Canada

Mexico

Europe

United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

Qatar

Israel

Rest of Middle East

Africa

South Africa

Egypt

Morocco

## Rest of Africa

What our report offers:

Market share assessments for the regional and country-level segments

Strategic recommendations for the new entrants

Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034

Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)

Strategic recommendations in key business segments based on the market estimations

Competitive landscaping mapping the key common trends

Company profiling with detailed strategies, financials, and recent developments

Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as

per the client's interest (Note: Depends on feasibility check)

### Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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