


Cold Chain:

A rapidly expanding sector

In 2021, the global market size for cold chain logistics was US \$266.81 billion. A study conducted by Precedence Research predicts the total market size could more than triple by 2030, reaching more than US \$948.24 billion, with an average annual growth rate of 15%. North America alone represented approximately 37% of the global market share in 2021, or US \$99 billion. The value of the Canadian market is estimated at US \$35 billion and, according to a recent study by Mordor Intelligence, the Canadian cold chain logistics market is expected to show an average annual growth rate of 3.5% on the horizon of 2028.

This data corroborates the prevailing sentiment in the industry. In fact, a 2020 Global Cold Chain Alliance survey of companies working in the field of warehousing and distribution of refrigerated products indicated that 90% of the companies questioned anticipated an increase in their business in the next two years, and 93% believed the industry as a whole would experience growth over the same period.



An important link in the global supply chain

The refrigerated products market is influenced by the rapid growth of the world population (particularly in Asia and Africa), growing urbanization, improving living standards, and the emergence of a middle class.

In addition, heightened awareness of the importance of health and well-being has positively impacted the demand for products with high nutritional value, especially when compared to a carbohydrate-based diet. The market for protein-rich products is likely to grow; sophisticated preservation techniques and efficient means of transportation make it economically feasible to transport these products over long distances.

The perishable products market is dominated by the fruit trade, estimated at 42%, in which bananas occupy the primary position. This is followed by fresh vegetables (21%), cold cuts (19%), seafood (14%), and dairy products (2%). Pharmaceuticals, natural health products, cut flowers, plants, and other smaller categories (such as chemicals and photographic film) round out the mix.

Global trade in perishable products represents about 208 million tons. About 90% of perishable products are transported in refrigerated containers equipped with motors to generate cold and provide air circulation. Reefer containers allow flexibility in the preparation and packaging of perishables, the size of shipments, the frequency of turns, and in intermodal transfers.

Montréal, A Cold Chain Hub

The cold chain is an important component of the Canadian economy, impacting the beef and pork industry, poultry farming, fisheries, the dairy industry, fruit and vegetable production, prepared foods, and pharmaceuticals.

The Port of Montreal is the leading port in Atlantic Canada in the distribution of fresh, chilled, and frozen products. It plays an important role in the distribution chains of perishable products in Quebec, Ontario, Western Canada, and the Midwest of the United States, particularly those that use maritime transport to do business with overseas markets. Port of Montreal container terminal carriers have access to a storage capacity of 1,710 refrigerated containers. The port is firmly positioned in the handling of perishable products, with transport streams estimated at 3 million tonnes per year. The Port of Montreal handles an average of 410 refrigerated containers per day.

With a new container terminal located in Contrecoeur on the south shore of the St. Lawrence scheduled to be commissioned in the last quarter of 2026, the Port of Montreal will strengthen its position by increasing the supply of perishable products on a global scale.

A booming market

The growth of the cold chain market creates business opportunities to attract high value-added merchandise. The market for perishable products is on the rise, and the use of refrigerated containers is steadily becoming more important. This increase is attributed to increased consumer demand for fruits and vegetables that cannot be grown in their home market. But other factors come into play, including the growing number of trade routes, the expansion of e-commerce, and the global rise in the disposable income of developing countries. Moreover, the worsening spread and severity of epidemics have resulted in an increased demand for cold chain logistic services for pharmaceutical products. Many biopharmaceutical, blood, and cell therapy products, as well as medical equipment, are temperature sensitive and require refrigerated containers for storage and transport. Some vaccines require very stable, ultra-low temperatures at -70°C . The global market estimated at US \$23 billion in 2022 is expected to reach US \$37 billion in 2027.¹ The range of perishable products is expanding rapidly with the need for refrigeration for the transport of sensitive electronic parts and computer chips.

There is also a modal shift of heat-sensitive goods from air to maritime transport. The capacity of refrigerated containers deployed by the world's ten main container shipping companies on regular lines is estimated at 2.5 million containers.² The weight of maritime transport of perishable products internationally represents 146 million tonnes, or the equivalent of 3,500,000 containers.³ Trade should continue to grow by 4% per year to reach 7 million TEUs (Twenty-Foot Equivalent Unit) by 2030.⁴

However, the cold chain is an energy-intensive industrial activity. The development of refrigerated containers requires specific equipment both on board ships, where hundreds of electrical outlets must be functional, and in port container terminals which have locations for the electrical supply of containers. It is estimated that around 35% of the energy consumption of port terminals supplies cold chain infrastructures. Global growth in demand for perishable products and expanding global supply chains are expected to dramatically increase energy demand and carbon emissions. Refrigerated containers account for a large part of a port's energy bill, hence their importance in port energy policy towards a low-carbon cold chain.

¹ **Technavioplus** (2022) Cold Chain Logistics Market for the Pharmaceuticals Industry by Service, Product, and Geography—Forecast and Analysis 2023–2027.

² **Alphaliner** (2022) Top 10 reefer container lines.

³ **PS Market Research** (2021) Reefer Container Market Research Report.

⁴ **Drewry Maritime Research** (2022) Reefer Shipping Annual Review and Forecast.

⁵ **Zis T.P.V. & Psarftis, H.N.** (2022) "Impacts of short-term measures to decarbonize maritime transport of perishable cargoes", *Maritime Economics*, 24 :602–629.

Conclusion

Cold chain stakeholders face significant challenges in maintaining the fluidity, safety, and security of perishable products. Canada's success in this high value-added market relies on a combination of regulatory factors, global logistics services, smart transportation, and warehousing infrastructure.

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