

WHILE THE COLD CHAIN MAINTAINS QUALITY AND SAFETY, IT IS ALSO VITALLY IMPORTANT TO OUR ECONOMY AND SOCIETY.

The 'Cold Chain' refers to the management of the temperature of perishable goods to ensure quality and safety along every stage of the production and distribution processes (<https://www.gcca.org/about/about-cold-chain>). The cold chain and its procedures make sure that specific and critical products are kept at safe temperatures to prevent discolouration, spoilage and the growth of harmful bacteria that could dramatically impact public health when digested (<https://www.gcca.org/about/about-cold-chain>).

While the cold chain maintains quality and safety, it is also vitally important to our economy and society. In the UK alone, the cold chain has a multi-billion pound impact on several different industries and it has created thousands of jobs ranging from warehouse personnel and drivers to analysts, mechanics and engineers. Its requirements and regulations help maintain quality and safety in many different industries and it ensures that food, blood bags, pharmaceuticals and vaccines are delivered swiftly, safely and efficiently to retailers and consumers worldwide, all the while maintaining a high quality and standard (coldchainfederation.org.uk).

The cold chain is critically important for many reasons, but it does face a lot of challenges on a regular basis. Every product has to undergo many different processes during the supply chain, and the longer and more complicated the process, the higher the risk of contamination or heat interference. So, companies have to take extra measures to avoid breaking the cold chain. A difficult task but thanks to Polar Thermal's innovative storage solutions and ground-breaking technology, the transportation of perishable goods is made simpler and more convenient.



The 'Cold Chain' and the Food Industry

The Cold Chain is used to keep fresh produce, frozen food and seafood at stable and appropriate temperatures throughout the supply chain. It ensures that perishable goods are kept safely at a temperature of between 2°C and 8°C, as these products can be easily contaminated by ambient air or the growth of harmful bacteria or spoilage if the correct temperature isn't properly maintained during production and transportation (<https://iceotemp.co.uk/what-are-the-current-uk-laws-on-chilled-food-transportation/>). Polar Thermal have developed a range of products to keep food and drink at stable temperatures throughout the supply chain and to keep your produce chilled across long-distance journeys.

The PolarTherm™ LD7 heavy-duty thermal blanket helps to uphold the cold chain requirements throughout the distribution process by keeping perishable products fresh and at an appropriate temperature range (<https://www.pr.com/press-release/138158>). They are made up of a unique three layer material with a reflective layer, a fibre filler and a PVC outer layer. These blankets have outstanding thermal insulation qualities and are designed to keep your products and produce fresh and of a high quality across long journeys by insulating the cargo and regulating the temperature (<https://www.pr.com/press-release/138158>). These thermal blankets offer customers a better and more efficient way to transport perishable goods by reducing the risk of produce being tampered with or damaged by fluctuating temperatures or ambient air (<https://www.pr.com/press-release/138158>). These blankets are used to protect a wide variety of products that are susceptible to heat interference and contamination during transport such as fresh fruit, vegetables and seafood.

The PolarQuilt™ works in a similar way in that it fulfils the cold chain's requirements by keeping food at a regulated temperature across long-distance journeys. It keeps frozen food between -18°C and -14°C, chilled food between +2°C and +8°C and ambient or shelf food between +15°C and +25°C. The PolarQuilt™ comes in a range of sizes, and it is made from an insulated foil-wrapped PolarTherm™ fibre as well as coolants that help to keep products cool for up to 72 hours. Polar Thermal's Polar Pod range of pallet shippers is similarly effective in keeping products fresh and cool and it can help to maintain high quality and standards of food up to 72 hours after packaging (<https://www.polarthermal.com/products/polar-pod/>).

The Performance Roll Cage also prevents a break in the cold chain as it keeps food fresh during transportation. This is a durable and lightweight system, and it was developed to safely deliver all types of food across long-haul journeys. With its unique features and innovative designs, it is certainly the safest and most efficient way to swiftly deliver fresh and healthy food.

As the food industry develops and consumer demand grows, companies are constantly having to adapt and think of new ways to keep the cold chain intact. However, Polar Thermal's ground-breaking and modern technology is here to meet your individual transportation needs and can assist in keeping fresh produce and frozen food at safe temperatures for extended periods of time.



The 'Cold Chain' and Blood Transportation

The blood cold chain is a system for transporting and storing blood at the correct temperature range from the point of collection to the point of distribution. Blood transfusion is an important part of modern medicine and it saves millions of lives each year (<http://digicollection.org/hss/documents/s19212en/s19212en.pdf>). So, it is important to keep blood supplies stocked, fresh and stored appropriately. However, if the blood cold chain were to break, i.e. if the temperature of the product were to move outside of the safe range of between 2°C and 6°C, it could have dramatic consequences for the health and pharmaceutical industries. Higher temperatures could have a dramatic impact on blood supplies and lead to the growth of harmful bacteria that could cause septic shock and even death after transfusion (<http://digicollection.org/hss/documents/s19212en/s19212en.pdf>). It could also result in wastage and consequently, a shortage in critical blood supplies. An effective blood cold chain is thus of major importance to medicine and the pharmaceutical industry, and Polar Thermal has developed a number of products to help keep blood supplies at a safe and stable temperature range.

For transporting blood supplies, we recommend our thermal insulated transportation box to ensure that blood supplies meet the blood cold chain

requirements. Equipped with a self-inflating internal cushion and a fully collapsible feature for easy storage, this transportation box is lightweight, durable and has excellent thermal insulation control properties that can help keep blood stored at the right temperature for up to 12 hours. The box is ideal for transporting blood and it makes the transport and distribution of blood supplies to communities worldwide easier and more efficient.

Similarly to the food industry, the healthcare and pharmaceutical industries have had to adapt and change as modern medicine and technologies become more advanced. Blood transfusions have become more and more common, so it is critically important that communities worldwide have swift and safe access to fresh blood supplies. While Polar Thermal has designed many other products that can keep blood supplies at safe temperature during long journeys, the thermal insulated transportation box has proved the most effective and it has been tried, tested and approved to meet your transportation needs.



The 'Cold Chain' and Pharmaceutical Transportation

The vaccine cold chain is critically important, particularly now during the COVID-19 pandemic. Vaccines have to be stored safely at cool temperatures as a failure to do so could lower the effectiveness of the vaccine against viruses and other

harmful illnesses (<https://www.unicef.org/supply/what-cold-chain>). As such, companies have to take extra measures to keep their vaccine supplies chilled at all stages of the manufacturing and transportation process and Polar Thermal have a wide range of products to suit this demand.

Polar Thermal's wide range of vaccine carry bags are perfect for transporting vaccines and other temperature-sensitive pharmaceuticals. Designed to withstand temperatures of between 2°C and 8°C, our 10, 20 and 30 litre carry bags are perfectly designed for vaccination programs as they can keep products stored at safe temperatures for up to 8 hours and all without the use of a cooling agent. Developed using NASA technology, these vaccine carry bags are made up of an inner reflective layer, a hollow fibre filler and a waterproof woven PVC outer layer, creating a tough and lightweight material with excellent thermal control properties. Its inner lid also reduces thermal leakage, which helps to maintain a steady temperature. Trusted by renowned companies such as Pfizer and AstraZeneca, Polar Thermal's vaccine carry bags are perfect for keeping perishable pharmaceuticals at cool temperatures for prolonged periods of time. While our bags have been proven to keep products cool at safe temperatures, we still advise our customers to use our 5°C to help keep the temperature in the bag stable and to avoid breaking the vaccine cold chain. All you need to do is place a cool pack on top of and underneath the samples and then one on each side. Also, if you need to open the bag repeatedly, we recommend placing thermal separators between each layer of vaccines to reduce the risk of ambient air contamination when opening the bag. We also recommend that if you must open the bag repeatedly, that you do so quickly and only to remove the vaccines in order to maintain the stable temperature of the bag.

PolarTherm™ Vaccine Shippers also help products to meet the requirements of the vaccine cold chain by keeping products cool during transportation. The 216 Shipper will hold up to 600 vials of vaccine and the Blukoat Shipper will hold twice that amount. Both systems are durable and easy to store, but more importantly, their thermal properties ensure that vaccine supplies stay at a safe temperature of between 2°C and 8°C, thus ensuring that the vaccine cold chain remains intact and that the vaccine's effectiveness remains unaffected.

Vaccines have become an important commodity in modern medicine, particularly since the Ebola outbreak and the COVID-19 pandemic. Vaccines are regularly helping to save lives worldwide and helping to fight against dangerous and deadly viruses and illnesses, so ensuring their effectiveness is vital. With a wide range of designs to choose from, Polar Thermal's products are ready to assist you in the safe and swift distribution of vaccines and other medical supplies to hospitals and communities worldwide.

Conclusion

The 'Cold Chain' has become incredibly important to modern life. Not only does it safeguard public health, but it also has a profound economic impact on agriculture, manufacturing, medicine and retail as it ensures good quality and high standards when products reach the consumer. However, with technology becoming more advanced and manufacturing processes and transport becoming more complex, the cold chain faces more and more challenges and so, companies need better products to make sure the chain is not broken at any stage of the distribution process. Polar Thermal has developed a wide range of such products and each of them have been tried, tested and proven to keep your fresh produce, frozen food and medical supplies at stable temperatures and of high quality and standard across any long-distance journey.