



DUPONT

Tyvek.

DUPONT™ TYVEK® AIR CARGO COVERS

We keep your air freight cool

DuPont™ Tyvek® air cargo covers - advanced temperature protection for your pharmaceuticals, perishables and heat-sensitive products

Temperature is one of the most important external factors that can affect pharmaceutical and food products during transportation. Temperature excursions, often the result of long transit times, flight delay and extended time on the airport tarmac, are the nuisance of many pharmaceutical and fresh food logistics providers that do not have the correct products and procedures in place. It has been estimated that up to 5% of all transport events involve a temperature deviation from plan and, according to IATA, 57% of temperature excursions occur during these 'uncontrolled' air-cargo stages of the distribution process.

Tyvek® covers significantly curtail the risk of temperature excursions and provide a high level of passive thermal protection from solar radiation and extreme ambient temperatures during supply chain and airport loading and unloading procedures.

We don't take chances with your products

Even the most rigorously pre-qualified shipping routes and regimes do not always perform as expected and with the introduction of mandatory temperature monitoring in many countries, it is vital that suitable precautions are in place to address all foreseeable eventualities. Even the best coolchain programme can be subject to unforeseen and unavoidable temperature exposures and pharma and food products are often exposed unintentionally to intense sunshine conditions for several hours.

Flight delays and changes, apron congestion, human errors, ambient temperature spikes, security inspections, handling mode changes, capacity overloads, inadequate packaging, industrial action and equipment breakdowns and malfunctions can all result in temperature-sensitive merchandise being exposed for longer than is acceptable. The resulting temperature non-conformances create the potential for loss of product efficacy, release delays or shipment rejection. At the very least, an unplanned thermal deviation will occur significant administrative costs and delays in recording and sorting the matter out.



Proven protection

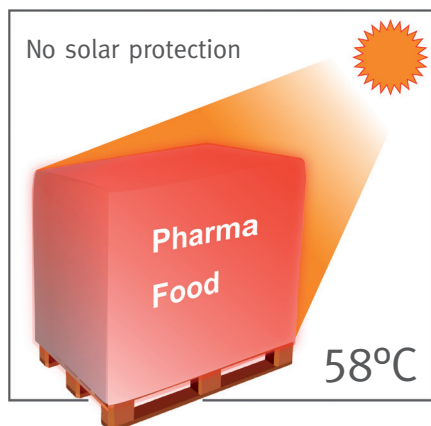
DuPont™ Tyvek® Air Cargo Covers employ proprietary 'triple-action' technology to address the threat of cold chain breaks during the ground handling and storage phases of air freight distribution.

Using Tyvek® Air Cargo Covers help ensure that:

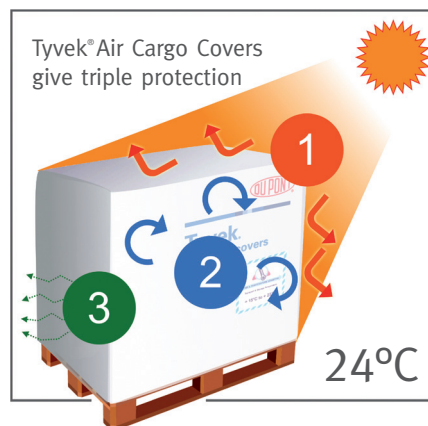
- ☀ Your transportation temperatures remains within current legislation and prevailing coolchain best practice.
- ☀ You are not penalised with unnecessary freight costs and fuel surcharges - the extremely low bulk and weight of Tyvek® has minimal impact on freight costs and fuel surcharges.
- ☀ You are not using cover materials that actually aggravate temperature gains - tests have shown conclusively that many commonly-used packaging materials and covers can contribute to a serious raising of package temperatures in solar radiation conditions.
- ☀ Your products can 'breathe' - pharmaceutical products, their primary packaging and their labels all need to be protected from the damaging effects of condensation which often occurs when ambient temperatures fall especially following a solar temperature spike. Similarly, the respiration of perishable foods is essential to their freshness and survival.
- ☀ Your products have additional protection from unauthorised interference - the inherent strength and tear resistance of Tyvek® provides protection against tampering.
- ☀ Your thermal covers are flame retardant in compliance with Fire Regulations - the material meets the aviation flammability requirements of FAR/JAR/CS 25.853(a).
- ☀ Your merchandise benefits from an effective barrier against dust, rain, sand and pests.
- ☀ You are not paying storage for bulky, labour intensive, time consuming protection - Tyvek® covers takes up minimal storage space and can be fitted in as little as 60 seconds.
- ☀ You are able to remove and reapply the cover quickly to rapidly cool products - this property of the Tyvek® cover design is a valuable time saver where products must be properly pre-cooled or need to cool down after exposure to heat.

Solar radiation - perishables enemy number one

You may think that the temperature inside a ULD or below a shrinkwrapped pallet-cover is pretty much the same as the air around it. But think again. The temperature under a pallet wrapping or inside a unit load device (ULD) can far exceed ambient temperature. During solar radiation events, which are invariably unplanned and unanticipated, pharma merchandise can be exposed to exceptional temperatures extremes on account of solar heat gain, a phenomenon that can be further exacerbated by local 'mirror' effects of nearby glass and metal clad buildings and the 'heat island' effect of the surrounding asphalt pavement.

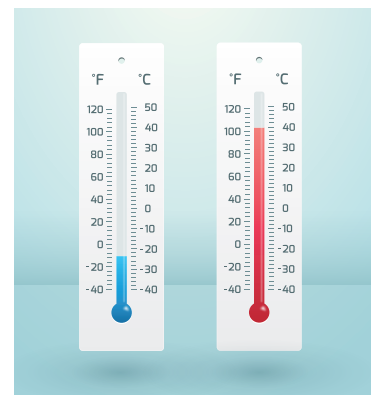


Solar radiation = significant heat gain



- ① - Reflective outer surface minimises solar heat gain
- ② - Low-emissivity metallic surface reduces thermal transfer to cargo
- ③ - Microporous structure permits evacuation of excess moisture and condensation

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