

Whitepaper Fruit & Vegetables

Eliminate food waste:
minimize waste during
transport and reduce claims

Whitepaper Kartoffeln, Gemüse und Obst

Fresh food is sensitive to external conditions. Take for example potatoes, fruit and vegetables. Too high temperatures, temperature fluctuations, humid environments and a lot of light are disastrous for these fresh products. The food is exposed to different situations from the moment of harvesting to the moment of consumption. In order to ensure quality and to slow down spoilage, attention should be paid to every step of the process. In this white paper you will read about how you can prevent food waste and loss of quality of these products by storing and transporting them under the right conditions.

Potatoes, fruit and vegetables

In the world of potatoes, fruit and vegetables, claims are not uncommon for rejected products that are below the customer's desired quality level. These products are sensitive to temperature changes, effects of delays and (air) pressure. When storage and transport conditions are not optimal, the quality of potatoes, fruit and vegetables can deteriorate rapidly, resulting in failure. This soon concerns quantities of 20-30% of the total harvest.

Soft fruit, for example, is very fragile. It is harvested when it is (almost) ripe and must therefore immediately be stored and transported at a low temperature. The optimal cooling temperature varies per type of fruit. To prevent mold, soft fruit is

packed in low cardboard boxes. Cardboard absorbs moisture. Using low boxes minimalizes the chance that the fruit at the top will crush the fruit at the bottom.

Potatoes, too, are usually stored directly in cold stores after harvesting in order to bridge any time to transport. For potatoes it is important that they are kept cool, dry and dark. Light stimulates the formation of solanine, which is a natural toxin. This creates green spots on the potatoes. For potatoes, transport and storage at the right temperature is crucial for quality preservation. Too low a temperature causes a change in taste. Too high a temperature and moisture cause mold and sprouts.

The optimal storage temperature differs per potato but is usually around 8 degrees Celsius. Besides providing a stable temperature, it is also important that the potatoes remain dry. Moisture causes potatoes to rot. Potato blankets are a solution to prevent this from happening and to immediately absorb any moisture along the way. These are large rolls made of absorbent material.

For vegetables, the transport and storage conditions also have a major influence on the quality of the products. Think for example of vulnerable vegetables such as lettuce. However, the optimal transport and



storage conditions can differ per vegetable type. Vegetables should be stored cool, dry and dark.

Determine the right transport conditions

Once you have determined the ideal transport temperature for your products, you can look for suitable tools. There are many possibilities for refrigerated transport of potatoes, vegetables and fruit.

For all three, the quality is best maintained when they are transported within a temperature range of 0 to 8 degrees Celsius. Stability in the temperature range is also important. Furthermore, the space in which the goods are transported should preferably be dry and dark, in order to prevent matters such as the formation of mold.

For transporting goods within a temperature range of 0 to 8 degrees Celsius, gel packs are an excellent solution. Gel packs are leakproof polyethylene bags filled with a polymer-based gel. They are extremely suitable for transporting goods in refrigerated conditions for up to 48 hours (depending on external conditions). Because they can be disposed of after use, gel packs lend themselves well for refrigerated transports without a return procedure. This is usually the case with potatoes, fruit and vegetables.

To minimize surface condensation during transport, you can use the No sweat gel packs. The bag of this gel pack consists of multiple layers, with a shell of

Keep your products cool with **gel packs**



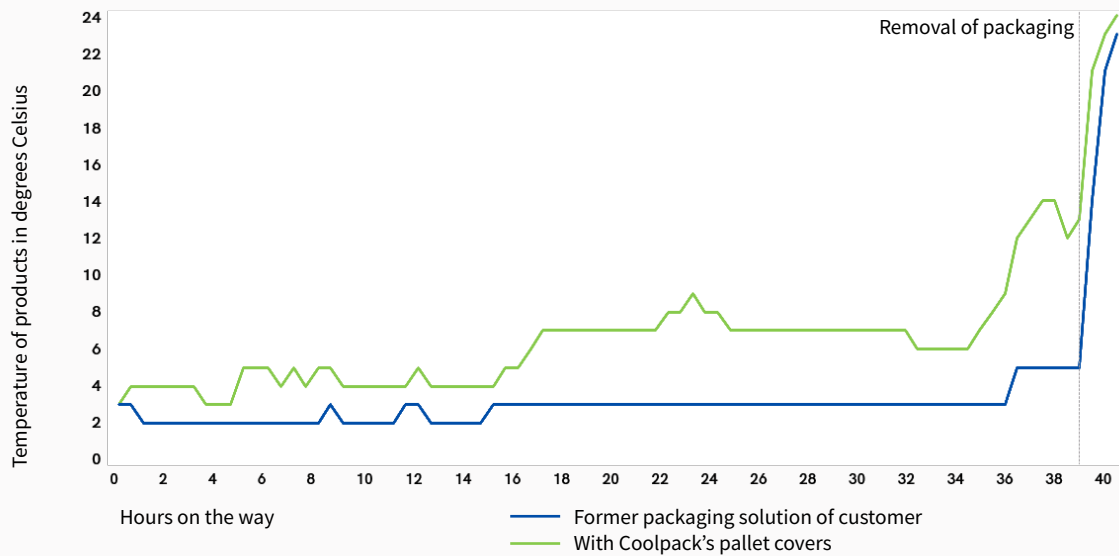
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non-woven material. This outer layer absorbs the condensation created during shipping. For products that are sensitive to moisture, such as potatoes, fruit and vegetables, these gel packs are a good option because the products themselves remain as dry as possible during transport. When choosing the Original gel packs, it is advisable to include other absorbent materials in your packaging. For example, you can use absorption mats for this purpose.



Test results Coolpack pallet covers during transport to Shanghai



Stability during transport of potatoes, fruit and vegetables

Furthermore, fruit and vegetables are often transported on Euro or block pallets. In order to achieve temperature stability and to keep the goods cool for a longer period of time, pallet covers can be used. A pallet cover is a bag that can be slid completely around a filled pallet and that protects

the contents from outside temperature influences. The outer layer of the cover is provided with a high-quality aluminum coating. This strengthens the insulating effect of the pallet cover. Moreover, heat energy and radiation are reflected on the outside. On the inside of the pallet cover cold air can be reflected. It works like an awning on a car standing in the burning sun. Pallet covers are used especially when transporting soft fruit. These are suitable for various means of transport, including the airplane.

Because the pallet covers are made of one piece, warm air cannot find its way to the transported goods. It is wise to cover the bottom of the pallet as well, so that warm air cannot find its way to the fragile products in any way.

The pallet covers of Coolpack are made of compact film with a high density, which increases the insulation value of the covers. By using refrigerants such as gel packs in combination with the pallet covers, the temperature of the goods remains at a cool temperature. It creates a kind of mobile refrigerator, as it were. As a result, your fragile potatoes, fruit and vegetables are protected against external influences during transport. The pallet covers have proven their quality, which means that products remain at a stable temperature even during prolonged transport and regardless of external conditions.





Tailor-made transport solutions

Transporting potatoes, fruit and vegetables is a specialism. Different types of potatoes, fruit and vegetables require different approaches. The duration of transport, external conditions during transport and the quantity of the products all influence the necessary tools to transport these products under the optimal conditions.

Coolpack offers customized solutions, so that your potatoes, fruit and vegetables arrive at their destination with good quality under all conceivable circumstances. Think for example of customized gel packs or gel packs with your logo on them.

Thanks to our own production facilities on site, customized solutions can be delivered that are specifically designed for your application. Coolpack's products are of excellent quality and meet all the requirements of the law. The gel packs are non-toxic and food proof.

Do you have any questions, would you like to order or would you like advice? Feel free to contact us using the details below. Our experts will be happy to help you.

