

# Paper pallets - specific circumstances sometimes lead to alternative solutions



Companies often need to find solutions to certain specific circumstances. The result is that they develop alternatives for classic wood pallets that are better suited to the particularities of their products or their logistic system. Such alternatives may be required for long transport distances or difficult product sizes, among other things. IKEA specifically developed the paper pallet because it better suits its logistical needs and helps it to meet its sustainability targets. In addition, this project has enabled the company to offer its customers even more attractive prices. IKEA also relies upon loading ledges to use the available space inside trucks more efficiently. A life cycle analysis reveals that both innovations reduce CO<sub>2</sub> emissions as well as transportation costs.

prevent pack

IKEA products are manufactured in various countries – in Eastern and Western Europe as well as in Asia. 'All of our transportation of products from factories to distribution centres and stores used to be carried out on wood pallets,' explains Jerome Jansen, Packaging Requirements & Compliance Specialist at

IKEA. 'Returning these empty pallets to the factories was very costly and was responsible for considerable CO<sub>2</sub> emissions. On top of that, the limited number of times that we could reuse these wood pallets was insufficient. We therefore set out to find alternatives.'

## 90% lighter

IKEA's R&D centre developed a solution based entirely on corrugated cardboard, including nine supporting blocks. 'These so-called paper pallets are fully recyclable,' states Vincent Hody, Environmental Coordinator at IKEA. 'Paper pallets are also considerably lighter than wood pallets; they weigh 2.5 kg instead of 23 kg. This 90% weight saving is directly related to a reduction in fuel consumption as well as emissions.'

Paper pallets can carry up to 750 kg and are available in

three basic formats. However, other formats can also be readily developed to fit the specific dimensions of a product. Furniture, for instance, does not take into account the standard dimensions of pallets. 'Approximately 90% of our transport of products between factories and distribution centres already use paper pallets,' underlines Jansen. 'This has enabled us to avoid between 50,000 and 100,000 transport movements a year.'

## Avoiding empty spaces

'Thanks to the paper pallets, we can also make better use of the available space within the trucks,' observes Cees de Jong, Logistics Manager Retail at IKEA Belgium. 'When we place bookshelves with a width of 60 cm on a standard 80 cm Europallet, we lose 20 cm space every time. These empty

spaces also affect the quality of the support, which increases the risk of product damage. The use of paper pallets enables us to employ more of the available space inside trucks. Paper pallets have a height of only 5 cm, whereas classic pallets measure 15 cm in height. These so-called flat paper pallets

good to remember

The use of paper pallets and loading ledges provides IKEA with **more flexibility to optimally load trucks and avoids empty spaces**. As a result, the number of transports between factories and stores is substantially reduced.

By using **paper pallets** and loading ledges, IKEA avoids having to transport wood pallets to and from production sites. In addition, the **weight** of the pallets is **considerably lower**, as are the resulting CO<sub>2</sub> emissions.

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are also perfectly in line with the strategy IKEA adopted at its inception: make a product and its packaging as flat as possible in order to maintain transport efficiency all the way to the end customer. We can thus carry an entire additional layer of products because we use so many flat packs.'

IKEA also developed the loading ledge – a small support device

made out of polypropylene that can be flexibly placed wherever needed on various sides of transport packaging. Loading ledges enable the transport of products without pallets, which is extremely practical for large packages. 'Instead of only three rows of pallets, we can often transport four by using loading ledges.'

## Less product damage

IKEA has the advantage that it manages its entire logistics chain—from manufacturing to in-store display. The introduction of the paper pallet has demanded numerous adaptations to the infrastructure: pallet shelves, forklift trucks in manufacturing

plants, logistic centres, and stores. In addition, the company has invested heavily in training its personnel to correctly handle the new pallets. The result of these various efforts is that IKEA now records less product damage than previously with classic pallets.



## How IKEA developed the paper pallet

### Step 1: prototype

For many years, IKEA has invested in developing its own expertise centre for cardboard packaging. The centre designed the initial prototype of the paper pallet. Which type of cardboard provides the most resistance? How can the supporting blocks best be crafted and placed? IKEA eventually opted for pallets that are made entirely of corrugated cardboard.

### Step 2: available in three basic formats

IKEA decided to develop the paper pallet on the basis of its product range. There are currently three basic formats; two are in line with the dimensions of the Euro pallet (80 x 120 cm) and half Euro pallet (80 x 60 cm), and the third is the IKEA pallet (80 x 200 cm).

### Step 3: plan for flexibility

On top of the three basic formats for the load surface of the pallets and the placement of supporting blocks, the pallets can also be tailored to specific dimensions. In addition, IKEA developed the loading ledge to be able to support very long products during transport. As a result, every load can be optimally adapted to the products.

### Life cycle analysis reveals environmental gain

IKEA had a life cycle analysis (LCA) carried out to compare the sustainability of its various transport packages. This LCA clearly revealed that the **paper pallets** and **loading ledges** achieve the best scores. In order to be reused, wood pallets must be transported back to factories. This weighs heavily in terms of **CO<sub>2</sub> emissions**. Paper pallets are up to **90% lighter**, which positively impacts the fuel consumption and number of transport movements. Moreover, the paper pallet and loading ledge materials can be **recycled after use**. Some of them even end up in new IKEA products.