

How can DOA preventive packaging reduce transport damage?

DOA preventive packaging is specially designed to protect products from transport damage. It combines advanced materials, shock-absorbing techniques and customised designs to ensure that goods arrive at their destination undamaged. By using the right DOA preventive packaging, you can significantly reduce transport damage, leading to lower costs, higher customer satisfaction and less waste of valuable products.

What is DOA preventive packaging?

DOA preventive packaging are industrial packaging solutions specifically designed to prevent products from arriving “Dead On Arrival” (DOA) or damaged at the recipient’s location. They go far beyond standard packaging by utilising **advanced protection techniques** tailored to the specific vulnerabilities of the product and the expected transport conditions.

This packaging is characterised by its robust construction and often consists of multiple layers of protection. The outer layer is usually made of durable materials such as high-quality plastic, aluminium or reinforced wood, depending on the application. Inside, you will find custom-made interiors made of shock-absorbing materials such as foam, which is precisely cut to hold the product in place.

Unlike standard packaging, which is primarily intended for simple storage and transport, DOA preventive packaging is designed after thorough analysis of product characteristics, transport conditions and potential risks. It not only offers protection against physical shocks, but can also protect against moisture, dust, electrostatic discharge and temperature fluctuations.

For high-tech equipment, medical instruments, defence equipment or other valuable and sensitive items, this packaging is indispensable for ensuring the integrity of the product throughout the supply chain.

Which transport risks cause the most product damage?

Transport damage is caused by various risk factors, with **shocks and vibrations** being the most common causes. During transport, products are exposed to sudden movements, falls, impacts and constant vibrations that can damage internal components, even if there are no visible signs of damage on the outside.

In addition to mechanical risks, moisture poses a serious threat. Condensation, rain or high humidity can lead to corrosion, short circuits in electronic components or degradation of materials. Especially in sea freight, the combination of moisture and salt water can be particularly harmful.

Temperature fluctuations are another significant risk. Extreme heat or cold can cause materials to expand or shrink, leading to cracks, deformation or loss of function. This is particularly problematic for precision instruments, electronic equipment and medical products.

Incorrect handling is perhaps the most unpredictable risk factor. Despite clear markings, packaging is often stacked incorrectly, placed upside down or exposed to pressure from other items. This human element makes it necessary to design packaging that can withstand unintentional misuse.

The impact of these risks varies depending on the method of transport. Road transport involves more vibration and shock, while air freight causes greater pressure changes and temperature fluctuations. Sea freight combines prolonged exposure to moisture with constant movement, which presents unique

challenges.

How do shock-absorbing elements work in DOA prevention?

Shock-absorbing elements in DOA preventive packaging work according to the principle of **energy dispersion and absorption**. When packaging undergoes an impact, these materials absorb the kinetic energy and disperse it over a larger surface area, significantly reducing the force that reaches the product.

The most commonly used shock-absorbing materials are various types of foam. Polyethylene (PE) foam is lightweight and offers good protection against repeated impacts. Polyurethane (PU) foam has excellent shape memory properties and returns to its original shape after compression. For heavier applications, ether foam is often used, which has been specially developed to absorb greater forces.

In addition to foam, other techniques are also used, such as air cushions, corrugated cardboard constructions and specially shaped plastic elements. These can be strategically placed to provide extra protection for critical points of a product.

The effectiveness of shock absorption depends on various factors, including the density of the material, its thickness and the way it is shaped. A well-designed interior takes into account the specific vulnerabilities of the product. For electronic equipment with sensitive components, custom-made cut-outs are often used to precisely enclose the product, while heavier industrial equipment requires more robust shock absorbers.

Modern shock-absorbing solutions go beyond physical protection alone. For products that are sensitive to electrostatic discharge (ESD), conductive foams are used to dissipate static electricity. For products that need to be protected from moisture, water-repellent or hermetically sealed materials are used.

How much does transport damage cost businesses each year?

Transport damage is a **significant expense** for businesses in all sectors. The direct costs include not only the value of the damaged product itself, but also the costs of replacement, return shipping, additional handling and administrative processing. For high-tech equipment, medical instruments or defence equipment, these costs can quickly run into thousands of pounds per incident.

However, the indirect costs are even more significant. When products arrive damaged, this leads to project delays, production interruptions and dissatisfied customers. The resulting damage to reputation is difficult to quantify in monetary terms, but can be much more damaging in the long term than the direct costs.

For companies in regulated sectors such as the medical industry or defence, transport damage can lead to compliance issues. If a product no longer meets the required specifications due to transport damage, this can lead to a breach of contractual obligations or even safety risks.

The relationship between investment in preventive packaging and the costs of transport damage is telling. Companies that invest in high-quality DOA preventive packaging typically see a significant reduction in damage claims. Although the initial investment is higher than for standard packaging, it is quickly recouped through reduced damage, fewer returns and higher customer satisfaction.

In addition, sustainable, reusable packaging solutions contribute to long-term cost reduction and reduced environmental impact, which is becoming increasingly important in the context of corporate social responsibility.

When is customised DOA packaging necessary?

Customised DOA preventive packaging becomes necessary when standard solutions do not provide sufficient protection for your specific product or transport conditions. This is often the case for products with a high value, complex shapes, sensitive components or specific vulnerabilities.

For products in the high-tech sector, such as advanced measuring equipment or prototypes, customisation is almost always required. These products often contain precision components that are extremely sensitive to shock, vibration or electrostatic discharge. Standard packaging simply does not offer the specific protection required for these unique properties.

Customisation is also the norm in the defence and security sector. Military equipment, communication systems and drones often have to function and be transported under extreme conditions. Not only do protection requirements play a role here, but also specific certifications such as MIL-STAN and other military quality standards.

Transport conditions are another important factor. Products that are shipped internationally, exposed to extreme climatic conditions or transported via multiple transport methods often require a customised solution that takes all these variables into account.

When considering customisation, it is important to look not only at current needs, but also at future developments. A well-designed customised solution can grow with product changes, be reusable for multiple shipments and therefore prove to be more cost-effective in the long term than repeated use of standard packaging.

By investing in the right DOA preventive packaging, you not only protect your products, but also your company's reputation and customer satisfaction. At Faes, we understand better than anyone how important it is to get valuable and sensitive equipment safely to its destination. With our expertise in industrial customised solutions, we ensure that your products are always optimally protected during transport, regardless of the challenges along the way.

Frequently Asked Questions

How do the costs of DOA preventive packaging compare to the costs of transport damage?

Although DOA preventive packaging requires a higher initial investment than standard packaging, the return on investment is usually very favourable. The cost of a single damaged high-value product often exceeds the additional cost of preventive packaging for an entire shipment. In addition, indirect costs must also be taken into account: customer satisfaction, less administrative handling of claims, and reduced environmental impact due to less waste from damaged products.

Can DOA preventive packaging be reused?

Absolutely, many DOA preventive packaging solutions are specifically designed for reuse. Robust flight cases, aluminium cases and custom-made foam interiors typically last for dozens of transport cycles. This not only makes them more sustainable, but also more cost-effective in the long term. For optimal reuse, it is important to set up a return logistics system and periodically inspect the packaging for possible wear or damage.

What are the latest innovations in DOA preventive packaging?

Recent innovations include smart packaging with built-in sensors that monitor shock, temperature and humidity during transport. This data can be read upon arrival or even tracked in real time. In addition, we are

seeing more and more bio-based materials that offer the same protective properties as traditional plastics, but with a lower environmental impact. Modular systems that can be easily adapted to different product configurations are also gaining popularity.

How do I deal with seasonal transport risks such as extreme temperatures?

For seasonal risks, it is important to choose packaging that protects against specific conditions. In hot periods, thermally insulating materials, reflective outer layers or phase-change materials (PCMs) can be used to absorb temperature peaks. For cold periods, it is important to use materials that do not become brittle at low temperatures. Also consider using moisture absorbers during humid seasons and adjust shipping times to avoid extreme conditions.