

# What are the safety standards for packaging?

Packaging safety standards are essential guidelines that ensure that products can be safely transported and stored. These standards not only protect contents from damage, but also ensure the safety of people and the environment throughout the logistics process. The main international standards include UN standards for hazardous materials, Dutch NEN standards and MIL-STD specifications for military applications.

## Why are safety standards for packaging so important?

Packaging safety standards are the basis for **safe transportation** of goods worldwide. These standards protect products from damage during transport, prevent accidents involving hazardous materials and ensure that packaging can withstand various environmental conditions.

In the industrial sector, these standards are crucial for sectors such as medical equipment, defense and high-tech products. Defective packaging can lead to costly damage to sensitive equipment or even safety issues. Therefore, these sectors often require specific certifications and testing procedures.

The standards also ensure uniformity in the logistics chain. Transportation and insurance companies can be confident that certified packaging meets international standards, facilitating global trade.

## What are the main international safety standards for packaging?

The main **international safety standards** for packaging fall into several categories, each with its own scope and requirements.

UN standards are the most widely recognized standards worldwide for the transportation of hazardous materials. These standards classify packaging into different groups based on the risk of its contents and prescribe specific testing procedures.

ISO standards focus on quality management and general packaging requirements. These standards are widely applicable and often form the basis for national regulations.

MIL-STD specifications are military standards that place extremely stringent requirements on packaging for defense and security applications. These standards go beyond civilian standards and require extensive testing procedures.

Standard Type	Application	Main Focus
UN standards	Hazardous materials transportation	Safety and classification
ISO standards	General quality	Processes and management
MIL-STD	Military applications	Extreme conditions
NEN Standards	Dutch market	Local implementation

## How do UN standards for transport packaging work?

UN standards for transport packaging work through a **classification system** that classifies hazardous materials into different classes and packaging groups. This system determines which packaging requirements apply.

The system has nine main classes of hazardous materials, from explosives to corrosives. Each class has specific packaging requirements. In addition, substances are classified into three packaging groups: I (highly hazardous), II (moderately hazardous) and III (slightly hazardous).

Packaging must pass extensive testing procedures before it becomes UN-certified. These tests include drop tests, stacking tests, leakage tests and pressure tests. Only packaging that passes all relevant tests may bear the UN mark.

For industrial custom packaging, this means that design and production must take these requirements into account from the beginning. It is not possible to make standard packaging UN-compliant afterwards.

## **What Dutch NEN standards apply to industrial packaging?**

Dutch **NEN standards** for industrial packaging are based on European EN standards and supplement international standards with local requirements. These standards are mandatory for certain applications in the Netherlands.

For example, NEN-EN 12642 regulates the requirements for load securing and packaging in road transport. This standard is essential for companies transporting heavy industrial goods.

For specific sectors such as the medical industry, there are additional NEN standards that align with Dutch laws and regulations. These standards address aspects such as sterility, traceability and documentation.

The implementation of NEN standards often requires cooperation between packaging specialists and compliance experts. Companies must demonstrate that their packaging processes comply with all relevant Dutch standards.

## **When are MIL-STD specifications required for packaging?**

**MIL-STD specifications** are required when packaging is used for military, defense or critical security applications. These standards set the most stringent requirements for packaging performance.

The specifications are mandatory for all suppliers to defense organizations, both domestic and international. Civilian organizations in the security sector also often choose MIL-STD certified packaging because of their superior protection.

MIL-STD testing goes far beyond civilian standards. Packaging must withstand extreme temperatures, humidity, vibration, shock and even electromagnetic interference. The test procedures simulate the harshest operational conditions.

For companies, MIL-STD certification represents a significant investment in testing facilities and quality systems. However, this certification also opens the door to lucrative defense and security markets.

## **How do you choose the right safety standard for your packaging project?**

Choosing the right safety standard starts with a thorough analysis of your **product type, transportation method** and final destination. Several factors determine which standards are applicable.

For hazardous materials, UN standards are mandatory, regardless of industry. For medical equipment, additional ISO standards and local regulations often apply. Defense applications usually require MIL-STD certification.

The method of transportation also plays a role. Air freight has more stringent requirements than road transport. International shipments must meet the standards of all countries involved.

It is wise to contact packaging specialists early in the design process who have experience with the relevant standards. They can advise on the most cost-effective way to achieve compliance without over-engineering.

Also consider future expansion. If you may later want to export to other markets, it may be smart to choose standards that are widely accepted internationally now.

### **How long does it take to get packaging certified to UN standards?**

The certification process for UN standards usually takes 4-8 weeks, depending on the complexity of the packaging and the availability of testing facilities. For new designs, it may take longer because multiple rounds of testing may be required. Therefore, plan well in advance and work with an experienced testing laboratory to avoid delays.

### **What happens if my packaging does not meet the required safety standards during transport?**

Non-compliance can result in serious consequences: fines from transportation authorities, insurance claims being denied, and in the worst case, stoppage of the shipment. In addition, you are liable for any damage to persons or the environment. Therefore, always ensure correct certification before shipping.

### **Can I modify existing packaging to meet MIL-STD specifications?**

In most cases, it is not possible to retrofit existing packaging to MIL-STD compliance. These specifications require specific materials, construction methods and design principles that must be integrated from the beginning. It is more cost-effective to immediately design new packaging that meets MIL-STD requirements.

### **What documents should I keep for compliance with Dutch NEN standards?**

NEN standards compliance requires you to maintain test certificates, quality manuals, traceability records and regular audit reports. In addition, production logs and supplier statements are required. Keep all documents for at least 5 years and provide digital backups for easy access during inspections.

### **How often should packaging certifications be renewed?**

Most safety certifications are valid for 3-5 years, but this varies by standard and application. UN certifications are usually valid for 3 years, while ISO certifications are often valid for 3 years with annual surveillance audits. MIL-STD certifications may be valid for a shorter period of time. Always check the expiration date and plan renewal well in advance.

### **What are the costs of implementing different security standards?**

Costs vary widely by standard and complexity: UN certification typically costs €2,000-€10,000, ISO implementation €5,000-€25,000, and MIL-STD certification can cost €15,000-€50,000. These amounts include testing, documentation and possibly process modifications. Invest in professional advice to avoid unnecessary costs.

### **Can I combine different safety standards in one packaging solution?**

Yes, it is possible to design packaging that complies with multiple standards simultaneously, such as UN + ISO or NEN + MIL-STD. This requires careful planning because some requirements may conflict. An integrated approach is often more cost-effective than developing separate packaging for each standard, especially for large volumes.

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