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**Guideline 01**

**Annex P07**

**Minimum requirements set for the quality plans of the  
quality assurance system for the production of packagings:**

Boxes made of solid fibreboard

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This annex is part of the guideline:

**Requirements to the quality assurance system for the  
production, reconditioning, repair and remanufacturing of  
packagings, Intermediate Bulk Containers and  
Large Packagings for the transport of dangerous goods.**

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# 1 Introduction

The production quality of each construction type of packaging used in the transport of dangerous goods should be equal to the quality of the construction type approved for the relevant UN-mark. The inspections required to ensure this are described in paragraphs 2 to 5.

For these inspections to be conducted, the nominal values of the relevant properties are to be recorded in the type test report.

The tolerances of the (average) values of various characteristics to be inspected as compared to the nominal values of the type test (to be provided by the manufacturer) are (as far as not specified otherwise in this annex):

±2% for the package's main dimensions;

±6% for the puncture resistance;

±7,5% for the bursting strength;

±5% for the basic mass;

±3% for its other properties.

The necessary written instructions must be drawn up to ensure proper performance of the inspections.

## 2 Inspection of incoming goods

Prior to commencing the manufacture of the packagings, the raw materials, auxiliary materials and semi-manufactures required for the manufacturing process should be inspected to ensure that they correspond with those used in the samples for the UN-type test.

### 2.1 Raw material

#### 2.1.1 *By using a supplier's factory test report*

Each delivery of raw material is to be inspected to check whether it corresponds with the permitted construction type which has been subjected to a UN type inspection. For this purpose, the products supplied are to undergo an identity check, comprising comparison with the supplier's factory test report (relating to the material as supplied) in accordance with EN 10204:2004 §4.1 (Type 3.1). A list of the properties to be inspected in this identity check is to be compiled jointly by supplier and producer and is to include at least the data stated in the stipulations described below (2.1.2).

#### 2.1.2 *By carrying out the identity checks*

As an alternative to 2.1.1, the identity check may be conducted by carrying out the following checks on each production series and at least once for each delivery:

- Total basic mass (ISO 536);
- Basic mass of the individual layers (ISO 3039) ;
- Bursting strength (ISO 2759) (for grades with a bursting strength smaller or equal to 4000 kPa);
- Puncture resistance (ISO 3036) (for grades with a bursting strength greater than 4000 kPa);
- Water absorption (ISO 535; Cobb<sub>1800</sub> test method), in 3-fold. (Requirement:  $\leq 155 \text{ g/m}^2$ );
- Type of cardboard (NEN 3376);
- Materials used in paper layers (NEN 3376).

#### Note 1:

Alternative test methods, equivalent to the methods described above, are allowed, provided that an identical method is used in both the type test and in the identity checks and that this method has been recorded by the manufacturer.

#### Note 2:

Deviations from the permitted tolerance range for the total basic mass and for the individual layers and application of other material types of the paper layers are permitted under the following conditions:

- For every modification of the material (material type and/or basic mass) it is recorded what the modification is for the packaging type concerned and all specifications have been recorded on the basis of measurements performed on the material.
- The modifications are such that the values of the bursting strength and/or puncture resistance and the water absorption remain within the required tolerances of the packaging type concerned and that the number of layers and its sequence do not change.

### 2.2 Semi-manufactures and auxiliary materials not mentioned in paragraph 2.1.

The semi-manufactures and auxiliary materials supplied are to be subjected to an identity check comprising comparison with the supplier's factory test report (which does not have to relate to the products as supplied) in accordance with EN 10204:2004 §3.2 (Type 2.2). A list of the properties to be inspected in this identity check is to be compiled by both supplier and producer.

Each delivery is to be inspected to check whether the semi-manufactures and auxiliary materials correspond with the permitted construction type which has been subjected to a UN type inspection.

Note

The supplier may also use test results of his supplier. This may be of importance for example for a check of the composition of certain applied raw materials and/or materials.

**2.3 Procedure**

The organisation of the inspection of incoming goods is to be described in a procedure and the methods of inspection are to be laid down in inspection instructions.

### 3 Production Inspection

#### 3.1 Production preparation

Prior to starting up the production process, all production machinery and accessory equipment are to be inspected to ensure that they are set correctly.

To this end, staff involved in the production process and inspection work is to have adequate and appropriate working and inspection instructions on the UN-approved construction type at their disposal, as well as the correct documentation.

Prior to starting up the production process, at least one packaging is to be subjected to the following inspections:

- Comparison with the construction type;
- General external condition;
- Dimensions in accordance with the construction drawing;
- Relevant dimensions.
- Finish of factory seam;

Depending on the type of factory seam, the finish should be tested in accordance with a or b (some elements of this procedure come under the Inspection of Incoming Goods, in accordance with paragraph 2.2):

a. Glues and adhesive tape:

- Inspection of the type of glue or adhesive tape used on the basis of the manufacturer's product specifications.
- Inspection of the glued or taped surface.

b. Staples:

- Inspection of the type, number and application of staples by means of a comparison with the inspection report.

- Correctness and legibility of the identification markings.

#### 3.2 During production

While the production process is running, the machines and systems are to be subjected to continuous inspection to ensure that they have been set accurately and that the work instructions are being observed. The following inspections are also required:

Inspections to be performed	Frequency
Relevant dimensions	Per order
Condition of the manufacturing joints	Per order

#### 3.3 Procedure

The organisation of the production inspections is to be described in a procedure and the methods of inspection are to be laid down in inspection instructions.

## 4 Final Inspection

### 4.1 Inspections required

The final inspection comprises the following inspections:

Inspections to be performed	Frequency
Comparison with the construction type	Per order
Correctness and legibility of the identification markings	Per order

### 4.2 Procedure

The organisation of the final inspections is to be described in a procedure and the methods of inspection are to be laid down in inspection instructions.

## 5 Verification

### 5.1 Verification required

The verification comprises the following tests:

Tests to be performed	Frequency
Drop test	Per order for each production line
Stacking test	Per order for each production line

### 5.2 Testing method and sampling

The indicated tests are to be conducted in accordance with the regulations of the transport of dangerous goods and the test programme of the applicable UN-type test.

The minimum number of samples to be tested is 1 for every test.

#### Notes

#### Notes

1. The performance of the drop test is not (yet) required, as there is no agreement under what conditions this test has to be performed. Provisionally the procedure as given in 3. can be applied on a voluntary basis.
2. The stacking test need not be performed if tests of a nominally similar construction type have demonstrated once that the compression strength is  $\geq 2.5$  times the force exerted by stacking
3. The manufacturer may replace the contents as mentioned in the test report by a suitable dummy contents at the performance of the drop test. The drop test can also be performed as alternative by the user of the combination packaging (holder of the UN-mark) with the original contents on the condition that this agreement between manufacturer and holder has been recorded in writing

### 5.3 Procedure

The organisation of the verification is to be described in a procedure and the test methods are to be laid down in test instructions.