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Guideline 01

Annex IBC03

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

Intermediate Bulk Containers made of rigid plastics

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7

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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):

±1% for the package's main dimensions;

±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:

- Trade name and type code of the raw material;
- Melt mass-flow rate (ISO 1133);
- Density (ISO 1183);
- Cross-linkage level of raw materials with a 'cross-linked' structure.

Note

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.

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;
- Mass of the container;
- Wall thickness and distribution, particularly corners/bends;
The minimum wall thickness should correspond with the value in the report for the type approval;
- Dimensional consistency and correct operation of connections for operating equipment and control;
- Seams (visual inspection);
- Damage to the walls;
- 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 |
|--|-----------------------|
| Condition of the construction type | Once every 10 IBCs |
| General external condition | Once every 10 IBCs |
| Mass | Once every 10 IBCs |
| Wall thickness | Once every 10 IBCs |
| Dimensions | Once every 10 IBCs |
| Damage to the walls | Once every 10 IBCs |
| Welds and seams (visual inspection) | Once every 10 IBCs |
| Connection flanges (visual inspection) | Once every 10 IBCs |
| When using 'cross-linked' plastic: 'Cross-linkage level' | Every 250th container |
| Folding/bending test | Every 250th container |
| When using 'non-cross-linked' plastic: Melting index | Every 250th container |

If the number of a particular type of packaging produced is less than the inspection interval stated, each property of the manufactured batch is to be tested/inspected at least once.

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 |
|---|--------------------|
| Correspondence of construction type with specification | Once every 10 IBCs |
| Completeness and legibility of the identification markings | Once every 10 IBCs |
| Leakproofness test (when applicable and only types 21H1; 21H2; 31H1; 31H2) | Every IBC |
| Completeness of accompanying documents (indications for use and operation and the documents for the periodic tests and inspections) | Every IBC |

If the number of a particular type of packaging produced is less than the inspection interval stated, each property of the manufactured batch is to be tested/inspected at least once.

4.2 Testing method

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.

4.3 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 |
|--|---------------------|
| Hydraulic pressure test (only types 21H1; 21H2; 31H1; 31H2) | Once every 500 IBCs |
| Drop test | Once every 500 IBCs |

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.

Sampling is to take place at a suitable point in the production period and to be spread evenly over the various UN-marks.

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.