



**T&C Packaging International
Testing & Consultancy Packaging
International
Part of the IBE - BVI group**

Verlengde Poolseweg 16
4818 CL Breda
The Netherlands
T.: +31- 76- 52 44 828
info@tc-pi.org

Guideline 01

Annex IBC01

**Minimum requirements set for the quality plans of the
quality assurance system for the production of packaging:
Intermediate Bulk Containers made of metal**

Date

June 1, 2013

Number of pages

8

All rights reserved.
No part of this publication may be
reproduced and/or published by print,
photoprint microfilm or any other
means without the previous written
consent of TCPI.

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.**

Contents

1	Introduction	3
2	Inspection of incoming goods	4
2.1	Raw material	4
2.1.1	By using a supplier's factory test report	4
2.1.2	By carrying out the identity checks	4
2.2	Semi-manufactures and auxiliary materials not mentioned in paragraph 2.1.	4
2.3	Procedure	4
3	Production Inspection	5
3.1	Production preparation	5
3.2	During production	5
3.3	Procedure	6
4	Final Inspection	7
4.1	Inspections required	7
4.2	Testing method	7
4.3	Procedure	7
5	Verification	8
5.1	Verification required	8
5.2	Testing method and sampling	8
5.3	Procedure	8

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, metal sheets and metal sections, 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:

- Chemical composition (e.g.: C, Si, Mn, P, S, AL in mass %)
- Yield point
- Tensile strength
- Elongation after fracture
- Dimensions
- Mass

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;
- Sizes and weights in accordance with the construction drawing (comparison of actual and required values);
- Actual volume;
- Concurrence of the seams with the welding drawing (visual inspection);
- Inspection of the welding seams on the container body, in accordance with the tests indicated in EN-ISO 15614;
- Non-destructive inspection of the welding seams of the constructive equipment for the presence of hair cracks with, for example, the aid of a Die Check to the following degrees:
 - 10% of the longitudinal seams (LN);
 - 2% of the round seams (RN);
 - 100% of the joints (between LNs and RNs and between LNs themselves);
- Condition of the closing devices;
- 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
Concurrence of the seams with the welding drawing (visual inspection)	Once every 10 welded parts
Inspection of the welding seams on the container body (see production preparation)	Once every 10 containers
Non-destructive inspection of the welding seams on the constructive equipment (see production preparation)	Once every 10 sets of constructional equipment
Position and correct operation of the filling and closing	Once every 10 filling and closure systems used
Determination of the dimensions: external measurements, apertures, etc.	Once every 10 IBCs

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
Completeness and legibility of the identification markings	Once every 10 IBC
Comparison with the construction type	Once every 10 IBC
Leakproofness test (when applicable and only types 21A, 31A, 21B, 31B, 21N and 31N)	Every IBC
Completeness of accompanying documents (instructions 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 21A, 31A, 21B, 31B, 21N and 31N)	Once every 500 IBCs
X-ray examination of all intersections and root fusion's	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.