Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

1. Introduction

The quality of each produced packaging used in the transport of dangerous goods must correspond to the quality of the design type as approved for the relevant UN-mark.

The production process of packaging starts with raw materials, semi-manufactures and auxiliary materials.

The minimum required controls are subdivided in control of incoming goods, production control and final control and are specified for each packaging type in the applicable following tables.

Reference to an undated standard in the tables means that the last published version of the standard concerned is applicable. It is acceptable to use another standard when it has been demonstrated that this standard is equivalent to the standard as referenced.

2. Controls

The controls are performed by comparing the object to be controlled with the reference data connected with the approved design type. This data can be traced back in the certificate of approval, the test reports, internal company information (for example purchase of materials) and applicable regulations for the transport of dangerous goods.

When measurements are performed during the controls then the measured values (average) are compared with the nominal values. In this case the nominal values must be provided with tolerances, and the measured values must be within these tolerances. The tolerances are given in the tables concerned. If not, the following tolerances are applicable:

± 1% for the main dimensions of the packaging;

± 3% for the other properties.

The necessary written instructions must be available to ensure proper performance of the controls.

In the case of different production lines and/or cavities a representative mix of the produced items must be submitted to the controls mentioned in the table(s) concerned below.

3. Incoming control

The table specifies which controls must be performed. In many cases certificates or other information which are supplied with the delivery of the raw materials, semi-manufactures or auxiliary materials, can be used.

Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

4. Production control

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

To this end, staff involved in the production and control process must have at their disposal adequate and appropriate working and control instructions on the UN approved design type, as well as the relevant documentation.

Production control includes the control of the first produced packaging and as well as the controls during production within a frequency as stipulated in the annexed tables.

As an element of production control, every packaging for liquids (and also for IBCs for solids which are filled or discharged under pressure) must be subject to a leakproofness test. The regulations require that every packaging must be capable of reaching the level of leakproofness obtained during the design type test. This requirement may be fulfilled by a combination of a suitable leakproofness test and relevant controls of incoming goods, production controls and final controls.

5. Final control

Unless otherwise specified in this document the indicated tests must be prepared, performed and evaluated in accordance with the regulations for the transport of dangerous goods and with the test programme of the applicable UN design type. The minimum number of samples to be tested is 1 for every test.

In accordance with 6.1.5.1.10 of the different regulations, several tests may be carried out on one sample provided the validity of the test results is not affected.

The holder of the certificate is responsible for the effectuation of all tests described in the tables in the annex. For all drop tests the most vulnerable place must be chosen for the evaluation.

In case of combination packagings and LPs, the drop test must be performed on the complete package. The holder of the certificate is responsible for the correct use/ quality of the inner packagings, its configuration, fittings/absorbents and closing systems/methods.

In the case of bags, the drop test must be performed by the holder of the certificate to guarantee the way of closing in accordance with the design type.

The stacking test or the compression test as specified in the tables may be performed on empty packagings.

Reassessment when failure occurs:
Where only one package fails in only one of the tests (as mentioned in the tables), this failed test shall be repeated on twice the normal number of identical packages required for that test. If they all pass, the packaging shall be regarded as meeting the test requirements.

6. Traceability

A traceability system must be provided able to trace which raw materials, semi-manufactures and relevant auxiliary materials have been used and which controls have been performed for each produced packaging.

Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

List of Tables

Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

<table>
<tr><th colspan="4">Table 1: Metal drums – jerricans and light gauge metal packagings</th></tr>
<tr><th>Code</th><th>Incoming control</th><th colspan="2">Production control</th><th>Final control</th></tr>
<tr><td rowspan="7">1A1
1A2
3A1
3A2
0A1
0A2</td><td rowspan="7">Control metal sheets at each delivery:
• Compare with type and verify certificate (EN standard for steel or equivalent)
• Measurement of the thickness for each delivery (tolerances for steel ISO 16162) (tolerances for tinplate EN 10202)

Semi-manufactures and auxiliary materials:
• Control at each delivery the supplier's specifications and the conformity with the design type</td><td colspan="2">First sample control and control during production (minimum per UN-mark and with frequency as indicated):</td><td rowspan="4">Inspections to be performed in case of production (1 x per month per UN-mark and minimum 1 sample for each test):
• Drop test
• Hydraulic pressure test[2] (liquids)
• Leakproofness test [1, 2] (liquids)</td></tr>
<tr><td>• Visual control conformity with design type, closures and external condition</td><td>1x per 4 hours</td></tr>
<tr><td>• Dimensions</td><td>1x per 4 hours</td></tr>
<tr><td>• Folded seams inspection (a sawn cross-section)</td><td>1x per 4 hours</td></tr>
<tr><td>• Welding seam test</td><td>1x per 4 hours</td><td rowspan="4">[1] If in the production control a leakproofness test is applied in a manner that can demonstrate a detection level at least corresponding the level for design type testing, then the leakproofness test can be cancelled at the final control [2]Not required for 0A1 and 0A2 (ADR/RID 6.1.1.3)</td></tr>
<tr><td>• Correctness and legibility of UN-marks</td><td>1x per 4 hours</td></tr>
<tr><td>• Control leakproofness testequipment</td><td>1x per 8 hours</td></tr>
<tr><td>• Leaktightness of packaging for liquids (where required in combination with other controls)</td><td>Each packaging</td></tr>
</table>

Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

<table>
<tr><th colspan="4">Table 2: Fibre drums</th></tr>
<tr><th>Code</th><th>Incoming control</th><th colspan="2">Production control</th><th>Final control</th></tr>
<tr><td rowspan="5">1G</td><td rowspan="5">Control raw material at each delivery:
At least the following data based on supplier's factory test report or own analyses are verified:
• Paper type
• Grammage (ISO 536); tolerance ± 5%
• Bursting strength (ISO 2758); tolerance ± 7,5%

Semi-manufactures and auxiliary materials:
• Control at each delivery the supplier's specifications and the conformity with the design type.</td><td colspan="2">• First sample control and control during production (minimum per UN-mark and with frequency as indicated):</td><td>Inspections to be performed in case of production (1 x per month per UN-mark and minimum 1 sample for each test):
• Drop test
• Stacking test[1] (conditioning not required)</td></tr>
<tr><td>• Visual control conformity with design type, manufacturing joints and external condition</td><td>1x per 4 hours</td><td rowspan="4">[1] The stacking test need not be performed if tests for the construction type have demonstrated that the compression strength is ≥ 2.5 times the force exerted during the stacking test</td></tr>
<tr><td>• Dimensions</td><td>1x per 4 hours</td></tr>
<tr><td>• Mass</td><td>1x per 4 hours</td></tr>
<tr><td>• Correctness and legibility of UN-marks</td><td>1x per 4 hours</td></tr>
</table>

Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

Table 3: Plastic drums – jerricans				
Code	**Incoming control**	**Production control**		**Final control**
1H1 1H2 3H1 3H2	Control raw material at each delivery: at least the following data based on supplier's factory test report or own analyses are verified: • Trade name and type/code of the base material; • Melt mass-flow rate (MFR) (ISO 1133) • Density (ISO 1183). Semi-manufactures and auxiliary materials: • Control at each delivery the supplier's specifications and the conformity with the design type	First sample control and control during production (minimum per UN-mark and with a frequency as indicated):		Inspections to be performed in case of production (1 x per month per UN-mark and minimum 1 sample for each test): • Drop test (- 18 °C) • Hydraulic pressure test (liquids) • Leakproofness test (liquids)
		• Visual control conformity with design type, welds, closures and external condition	1 x per 8 hours	
		• Dimensions: neck (tolerance +/- 3%) body (tolerance +/- 3%)	1 x per 24 hours at start	
		• Mass: tolerance +/- 5 % for ≤ 30 l tolerance +/- 4 % for >30 l ≤ 120 l tolerance +/- 3 % for > 120 l	1 x per 8 hours	
		• Minimum wall thickness and distribution of wall thickness or compression test	1 x per 8 hours	
		• Inspection of welds by means of drop tests (at ambient temperature)	1 x per 8 hours	
		• Correctness and legibility of UN-marks	1 x per 8 hours	
		• Control leakproofness test equipment	1 x per 8 hours	
		• Leaktightness of packaging for liquids (where required in combination with other controls)	every packaging	

Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

<table>
<tr><th colspan="4">Table 4: Metal boxes</th></tr>
<tr><th>Code</th><th>Incoming control</th><th colspan="2">Production control</th><th>Final control</th></tr>
<tr><td rowspan="5">4A
4B</td><td rowspan="5">Control raw material at each delivery:
At least the following data based on supplier's factory test report or own analyses are verified:
• Code and/or trade name, as an indication of the quality of the steel or aluminum
• A requirement for one or more quality characteristics (e.g. the yield point, carbon content of steel)

Semi-manufactures and auxiliary materials:
• Control at each delivery the supplier's specifications and the conformity with the design type</td><td colspan="2">• First sample control and control during production (minimum per UN-mark and with frequency as indicated):</td><td rowspan="2">At manufacturer site:
Inspections to be performed in case of production (1 x per month per UN-mark and minimum 1 sample for each test):
• Stacking test [1]
• Drop test [2] (conditioning not required)

At the holder of the certificate of combination packaging:
control of conformity with the design type of the packaging at use includes:
• Correct use/quality of inner packaging
• Configuration of inner packaging in outer packaging
• Fittings/absorbents
• Closing systems/methods
• Droptest [3] (conditioning not required)</td></tr>
<tr><td>• Visual control conformity with design type, manufacturing joints and external condition</td><td>1x per 4 hours</td></tr>
<tr><td>• Dimensions</td><td>1x per 4 hours</td></tr>
<tr><td>• Mass</td><td>1x per 4 hours</td><td rowspan="2">[1]The stacking test needs not be performed if tests on a package have demonstrated that the compression strength is ≥ 3 times the force exerted during the stacking test
[2]Drop test (1 x per month per UN-mark and minimum 1 sample for each test) for single packaging. The drop test can also be performed as an alternative by the holder of the UN-mark on the condition that this agreement between manufacturer and holder has been recorded in writing
[3] Drop test at holder of the certificate (combination packaging) (to be effectuated at random during third party inspection by the authorised organisation)</td></tr>
<tr><td>• Correctness and legibility of UN-marks</td><td>1x per 4 hours</td></tr>
</table>

Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

<table>
<tr><th colspan="4">Table 5: Wooden boxes</th></tr>
<tr><th>Code</th><th>Incoming control</th><th colspan="2">Production control</th><th>Final control</th></tr>
<tr><td rowspan="5">4C1
4C2
4D</td><td rowspan="5">Control raw material natural wood – plywood at each delivery:
At least the following data based on supplier's factory test report or own analyses are verified:
• Type of wood or trade name
• Nominal dimensions
• Number of layers in the plywood
• Indication (or spread) of the moisture content on delivery (not for plywood)

Semi-manufactures and auxiliary materials:
• Control at each delivery the supplier's specifications and the conformity with the design type</td><td colspan="2">• First sample control and control during production (minimum per UN-mark and with frequency as indicated):</td><td rowspan="3">At manufacturer site:
Inspections to be performed in case of production (1 x per month per UN-mark and minimum 1 sample for each test):
• Stacking test [1]
• Drop test [2] (conditioning not required)

At the holder of the certificate of combination packaging:
control of conformity with the design type of the packaging at use includes:
• Correct use/quality of inner packaging
• Configuration of inner packaging in outer packaging
• Fittings/absorbents
• Closing systems/methods
• Droptest [3] (conditioning not required)</td></tr>
<tr><td>• Visual control conformity with design type, manufacturing joints and external condition</td><td>1x per 4 hours</td></tr>
<tr><td>• Dimensions</td><td>1x per 4 hours</td></tr>
<tr><td>• Mass</td><td>1x per 4 hours</td><td rowspan="2">[1]The stacking test needs not be performed if tests on a package have demonstrated that the compression strength is ≥ 3 times the force exerted during the stacking test
[2]Drop test (1 x per month per UN-mark and minimum 1 sample for each test) for single packaging. The drop test can also be performed as an alternative by the holder of the UN-mark on the condition that this agreement between manufacturer and holder has been recorded in writing
[3] Drop test at holder of the certificate (combination packaging) (to be effectuated at random during third party inspection by the authorised organisation)</td></tr>
<tr><td>• Correctness and legibility of UN-marks</td><td>1x per 4 hours</td></tr>
</table>

Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

Table 6: Fibreboard boxes

Code	Incoming control	Production control		Final control
4G	Control raw material at each delivery: At least the following data based on supplier's factory test report or own analyses are verified: **Paper** • Paper type • Grammage (ISO 536) **Corrugated board** • Maintain corrugation types, number and order • Water absorption Cobb test 1800 (ISO 535) ≤ 155g/m² • Thickness of corrugated board, measured with a precision of 0.1 mm (ISO 3034) • Edge crush test (ISO 3037) Average value of 10 measurements may deviate max. 10 % of the average value measured on the design type. Variation coefficient < 10% • Bursting strength (ISO 2759) for qualities with a bursting strength of 350 kPa up to 4000kPa Average value of 20 measurements may deviate max. 7,5 % of the average value measured on the design type. Variation coefficient < 10% • Puncture resistance (ISO 3036) for qualities with a bursting strength of > 4000kPa The average value of 20 measurements may deviate max. 15 % of the average value measured on the design type. Variation coefficient < 10% Semi-manufactures and auxiliary materials: • Control at each delivery the supplier's specifications and the conformity with the design type	• First sample control and control during production (minimum per UN-mark and with frequency as indicated):		**At manufacturer site**: Inspections to be performed in case of production (1 x per month per UN-mark and minimum 1 sample for each test): • Stacking test [1] • Drop test [2] (conditioning not required) **At the holder of the certificate of combination packaging**: control of conformity with the design type of the packaging at use includes: • Correct use/quality of inner packaging • Configuration of inner packaging in outer packaging • Fittings/absorbents • Closing systems/methods • Droptest [3] (conditioning not required)
		• Visual control conformity with design type, external condition and manufacturing joints (in function of the application: control of the used gluing/tape; place/ type/number of stitches)	1x per hour	[1]The stacking test needs not be performed if tests on a package have demonstrated that the compression strength is ≥ 3 times the force exerted during the stacking test [2]Drop test (1 x per month per UN-mark and minimum 1 sample for each test) for single packaging. The drop test can also be performed as an alternative by the holder of the UN-mark on the condition that this agreement between manufacturer and holder has been recorded in writing [3] Drop test at holder of the certificate (combination packaging) (to be effectuated at random during third party inspection by the authorised organisation)
		• Inner dimensions of the box Authorised deviation Double face - single wall corrugated board +3 mm Double wall corrugated board +5 mm Triple wall corrugated board +10 mm	1x per hour	
		• Correctness and legibility of UN-marks	1x per hour	

Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

<table>
<tr><th colspan="4">Table 7: Plastic boxes</th></tr>
<tr><th>Code</th><th>Incoming control</th><th colspan="2">Production control</th><th>Final control</th></tr>
<tr><td>4H1
4H2</td><td>Control raw material at each delivery:
At least the following data based on supplier's factory test report or own analyses are verified:
• Type of material, trade name and manufacturer
• Density (ISO 1183)
• Melt mass-flow rate (MFR) (ISO 1133)

Semi-manufactures and auxiliary materials:
• Control at each delivery the supplier's specifications and the conformity with the design type</td><td colspan="2">• First sample control and control during production (minimum per UN-mark and with frequency as indicated):</td><td>At manufacturer site:
Inspections to be performed in case of production (1 x per month per UN-mark and minimum 1 sample for each test):
• Stacking test [1]
• Drop test [2] (conditioning not required)

At the holder of the certificate of combination packaging:
control of conformity with the design type of the packaging at use includes:
• Correct use/quality of inner packaging
• Configuration of inner packaging in outer packaging
• Fittings/absorbents
• Closing systems/methods

• Droptest [3] (conditioning not required)</td></tr>
<tr><td rowspan="4"></td><td rowspan="4"></td><td>• Visual control conformity with design type, manufacturing joints and external condition</td><td>1x per 4 hours</td><td rowspan="4">[1]The stacking test needs not be performed if tests on a package have demonstrated that the compression strength is ≥ 3 times the force exerted during the stacking test
[2]Drop test (1 x per month per UN-mark and minimum 1 sample for each test) for single packaging. The drop test can also be performed as an alternative by the holder of the UN-mark on the condition that this agreement between manufacturer and holder has been recorded in writing
[3] Drop test at holder of the certificate (combination packaging) (to be effectuated at random during third party inspection by the authorised organisation)</td></tr>
<tr><td>• Dimensions</td><td>1x per 4 hours</td></tr>
<tr><td>• Mass</td><td>1x per 4 hours</td></tr>
<tr><td>• Correctness and legibility of UN-marks</td><td>1x per 4 hours</td></tr>
</table>

Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

<table>
<tr><th colspan="5">Table 8: Paper bags</th></tr>
<tr><th>Code</th><th>Incoming control</th><th colspan="2">Production control</th><th>Final control</th></tr>
<tr><td rowspan="7">5M1
5M2</td><td rowspan="7">Control raw material at each delivery:
At least the following data based on supplier's factory test report or own analysis are verified:

<u>Paper</u>
• Paper type
• Grammage (ISO 536): tolerance ± 5%
• TEA-value (=TEA_{AV}) (ISO 1924/2 or ISO 1924-3) must not be lower than the design type value
• Elongation at break in longitudinal and transversal direction (ISO 1924/2 or ISO 1924-3).
<u>Film</u>
• Material thickness (ISO 4593);
Tolerance: ≥60 µm ± 10%
Tolerance: < 60 µm ± 25%
• Mechanical test:
○ Tensile strength and elongation at break, both parallel and perpendicular to the extrusion direction (ISO 527) <u>or</u>
○ Dart test (ISO 7765)
Semi-manufactures and auxiliary materials:
• Control at each delivery the supplier's specifications and the conformity with the design type.</td><td colspan="2">• First sample control and control during production (minimum per UN-mark and with frequency as indicated):</td><td><u>At the holder of the certificate</u>
Verification of the closing system of the bag during filling process (1 x per 2 hours)

Inspections to be performed in case of production (1 x per month per UN-mark and minimum 1 sample for each test):

• Droptest[1] (conditioning not required)</td></tr>
<tr><td>• Visual control conformity with design type, manufacturing joints and external condition</td><td>1 x per 2 hours</td><td rowspan="6">[1]Droptest to be effectuated by the holder of the certificate</td></tr>
<tr><td>• Order of the layers</td><td>1 x per 2 hours</td></tr>
<tr><td>• Dimensions conform construction drawing (ISO 6591) (tolerance ± 15mm)</td><td>1 x per 2 hours</td></tr>
<tr><td>• Condition of the seams</td><td>1 x per 2 hours</td></tr>
<tr><td>• Closing, valve, bottom construction</td><td>1 x per 2 hours</td></tr>
<tr><td>• Correctness and legibility of UN-marks</td><td>1 x per 2 hours</td></tr>
</table>

Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

Table 9: Plastic bags (part 1 From raw material to bag)				
Code	**Incoming control**	**Production control**		**Final control**
5H1 5H2 5H3 5H4	**From raw material to bag** Control raw material at each delivery: At least the following data based on supplier's factory test report or own analyses are verified: • Trade name and type/code of the base material • Melt mass-flow rate (ISO 1133) • Density (ISO 1183)	• First sample control and control during production (minimum per UN-mark and with frequency as indicated):		**<u>At the holder of the certificate</u>** Verification of the closing system of the bag during filling process (1 x per 2 hours) Inspections to be performed in case of production (1 x per month per UN-mark and minimum 1 sample for each test): • Droptest[1] (conditioning not required)
		<u>Plastics film</u> • Thickness of the material (ISO 4593); (tolerance ± 10%) • Mechanical test: ○ Tensile strength and elongation at break, both parallel and perpendicular to the extrusion direction (ISO 527) **<u>or</u>** ○ Dart test (ISO 7765)	1 x per reel 1 x per reel	
		<u>Plastics fabric</u> • Grammage (ISO 3801) • Number of threads per 10 cm warp and weft direction • Number of deniers in warp and weft direction • Tensile strength and elongation at maximum tensile force in warp and weft direction (ISO 1421)	1 x per lot 1 x per lot 1 x per lot 1 x per lot	
		<u>Bag production</u> • Visual control conformity with design type manufacturing joints, external condition and order of layers • Dimensions (tolerance ± 5 mm) • Condition of the seams • Filling/closing system and bottom construction • Correctness and legibility of UN-marks	1 x per 2 hours 1 x per 2 hours 1 x per 2 hours 1 x per 2 hours 1 x per 2 hours	[1]Droptest to be effectuated by the holder of the certificate

Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

<table>
<tr><th colspan="4">Table 10: Plastic bags (part 2 From film/woven material to bag)</th></tr>
<tr><th>Code</th><th>Incoming control</th><th colspan="2">Production control</th><th>Final control</th></tr>
<tr><td rowspan="5">5H1
5H2
5H3
5H4</td><td rowspan="5"><u>From film/woven material to bag</u>
Semi-manufactures and auxiliary materials:
Control at each delivery the supplier's specifications covering at least the points below and the conformity with the design type:
<u>Plastics film</u>
• Thickness of the material (ISO 4593)
• Mechanical value:
• Tensile strength and elongation at break, both parallel and perpendicular to the extrusion direction (ISO 527) <u>or</u>
• Dart test (ISO 7765)
<u>Plastics fabric</u>
• Grammage (ISO 3801)
• number of threads per 10 cm warp and weft direction
• Number of deniers in warp and weft direction
• Tensile strength and elongation at maximum tensile force in warp and weft direction
(ISO 1421)</td><td colspan="2">• First sample control and control during production (minimum per UN-mark and with frequency as indicated):</td><td rowspan="2"><u>At the holder of the certificate</u>
Verification of the closing system of the bag during filling process (1 x per 2 hours)

Inspections to be performed in case of production (1 x per month per UN-mark and minimum 1 sample for each test):
• Droptest[1] (conditioning not required)</td></tr>
<tr><td><u>Bag production</u>
• Visual control conformity with design type manufacturing joints, external condition and order of layers</td><td>1 x per 2 hours</td></tr>
<tr><td>• Dimensions</td><td>1 x per 2 hours</td><td rowspan="3">[1]Droptest to be effectuated by the holder of certificate</td></tr>
<tr><td>• Condition of the seams</td><td>1 x per 2 hours</td></tr>
<tr><td>• Filling/closing system and bottom construction</td><td>1 x per 2 hours</td></tr>
<tr><td></td><td></td><td></td><td>• Correctness and legibility of UN-marks</td><td>1 x per 2 hours</td></tr>
</table>

Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

Table 11: Composite packagings

Code	Incoming control	Production control		Final control
6HA1 6HA2 6HC 6HD1 6HD2 6HG1 6HG2 6HH1 6HH2	Control plastic inner receptacle, in accordance with procedure as described in the table for plastic drums (without final control) Control the outer part of the packaging in accordance with the procedure as described in the applicable table for the used outer packaging (without final control) Control composite type Semi-manufactures and auxiliary materials: • Control at each delivery the supplier's specifications and the conformity with the design type	First sample control and control during production (minimum per UN-mark and with frequency as indicated):		Inspections to be performed in case of production (1 x per month per UN-mark and minimum 1 sample for each test): • Drop test (-18°C) • Hydraulic pressure test (liquids) • Leakproofness test (liquids) • Stacking test in accordance with the requirements of the procedures described for the used outer packaging
		• Visual control conformity with design type, closures and external condition	1 x per 4 hours	
		• Closing outer packaging, e.g. folded seams inspection	1 x per 4 hours	
		• Correctness and legibility of UN-marks	1 x per 4 hours	
		• Exact fitting inner receptacle in outer packaging	1 x per 4 hours	

Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

Table 20: Metal Intermediate Bulk Containers (IBC) and Large Packagings (LP)				
Code	**Incoming control**	**Production control**		**Final control**
11A 21A 31A 50A	Control raw material at each delivery: At least the following data based on supplier's factory test report or own analyses are verified: • Chemical composition • Mechanical properties (tensile strength, yield point, elongation at break) • Dimensions • Mass • Thickness Semi-manufactures and auxiliary materials: • Control at each delivery the supplier's specifications and the conformity with the design type	First sample control and control during production (minimum per UN-mark and with frequency as indicated):		Inspections to be performed in the case of production (1 x per 500 IBCs/LPs per UN-mark with a minimum of 1x per year): • Hydraulic pressure test (21A and 31A) • X-ray, magnetic or an equal alternative examination of all intersections and root fusion's
		• Visual control conformity with design type/closures, seams and external condition	every IBC/LP	
		• Dimensions	every IBC/LP	
		• Volume	every IBC/LP	
		• Welding seams (for example according to EN-ISO 15614 and non-destructive inspection on hair cracks for example with penetrating liquid (Die-Check)	2/27 IBC	
		• Correctness and legibility of UN-marks	every IBC/LP	
		• IBC of the types 21A and 31A: leaktightness according to test program of the design type test	every IBC/LP	

Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

Table 21: Plastic rigid Intermediate Bulk Containers (IBC) and Large Packagings (LP)				
Code	**Incoming control**	**Production control**		**Final control**
11H1 11H2 21H1 21H2 31H1 31H2 50H	Control raw material at each delivery: At least the following data based on supplier's factory test report or own analyses are verified: • Trade name and type/code of the base material • Melt mass-flow rate (MFR) (ISO 1133) • Density (ISO 1183) Semi-manufactures and auxiliary materials: • Control at each delivery the supplier's specifications and the conformity with the design type	First sample control and control during production (minimum per UN-mark and with frequency as indicated):		Inspections to be performed in the case of production (1 x per 7500 IBCs/LPs with a minimum of 1x per year per UN-mark): • Drop test (- 18 °C) • Hydraulic pressure test (21H and 31H) • Leakproofness test (21H and 31H)
		• Visual control conformity with design type, welds, closures and external condition, damage to the walls	1x per 8 hours	
		• Mass receptacle	1x per 8 hours	
		• Wall thickness thickness and distribution of wall	1x per 8 hours	
		• Correctness and legibility of UN-marks	1x per 8 hours	
		• Control leakproofness test equipment	1x per 8 hours (for blow moulding process) 1x per month (for rotomoulding process)	
		• Cross-linkage (if applicable)	1x per 250 IBCs	
		• IBC of the types 21H and 31H: leaktightness verification (where required in combination with other controls)	Every IBC	

Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

<table>
<tr><th colspan="4">Table 22: Fibreboard Intermediate Bulk Containers (IBCs) and Large Packagings (LPs)</th></tr>
<tr><th>Code</th><th>Incoming control</th><th colspan="2">Production control</th><th>Final control</th></tr>
<tr><td>11G
50G</td><td>Control raw material at each delivery:
At least the following data based on supplier's factory test report or own analyses are verified:
<u>Paper</u>
• Paper type;
• Grammage (ISO 536); tolerance ± 5% or minimum grammage per m² at modification of quality
<u>Corrugated board</u>
• Maintain corrugation types, number and order
• Water absorption Cobb test ISO 535)
• Thickness of corrugated board, measured with a precision of 0.1 mm (ISO 3034)
• Edge crush test (ISO 3037) Average value of 10 measurements may deviate max. 10 % of the average value measured on the design type. Variation coefficient < 10%
• Bursting strength (ISO 2759) for qualities with a bursting strength of 350 up to 4000kPa
Average value of 20 measurements may deviate to max. 7,5 % of the average value measured on the design type. Variation coefficient < 10%
• Puncture resistance (ISO 3036) for qualities with a bursting strength of > 4000kPa
Average value of 20 measurements may deviate max. 15 % of the average value measured on the design type. Variation coefficient < 10%
Semi-manufactures and auxiliary materials:
• Control at each delivery the supplier's specifications and the conformity with the design type</td><td colspan="2">First sample control and control during production (minimum per UN-mark and with frequency as indicated):</td><td>Inspections to be performed in case of production (1 x per 1500 IBCs/LPs per UN-mark with a minimum of 1x per year):
• Drop test (conditioning: not required)
• Stacking test[1]</td></tr>
<tr><td rowspan="5"></td><td>• Visual control conformity with design type, parts, external condition and manufacturing joints (in function of the application: control of the used gluing/tape; place/ type/number of stitches)</td><td>1x per 10 IBCs/LPs</td><td rowspan="5">[1] The stacking test needs not be performed if tests on a package have demonstrated that the compression strength is > 2.5 times the force exerted during the stacking test</td></tr>
<tr><td>• Outer dimension
Authorised deviation
Double face - single wall corrugated board +3mm
Double wall corrugated board +5mm
Triple wall corrugated board +10mm</td><td>1x per 10 IBCs/LPs</td></tr>
<tr><td>• Proper function of closure system</td><td>1x per 10 IBCs/LPs</td></tr>
<tr><td>• Control interior side on the possibility of damaging the liner</td><td>1x per 10 IBCs/LPs</td></tr>
<tr><td>• Correctness and legibility of UN-marks</td><td>1x per 10 IBCs/LPs</td></tr>
</table>

Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

<table>
<tr><th colspan="4">Table 23: Flexible Intermediate Bulk Containers (IBCs) and Large Packagings (LPs)</th></tr>
<tr><th>Code</th><th>Incoming control</th><th colspan="2">Production control</th><th>Final control</th></tr>
<tr><td rowspan="5">13H1
13H2
13H3
13H4
13H5
51H</td><td rowspan="5">Control raw material at each delivery:
At least the following data based on supplier's factory test report or own analyses are verified:
<u>Plastics</u>
• Trade name and type/code of the base material
• Melt mass-flow rate (MFR) (ISO 1133)
• Density (ISO 1183)
<u>Plastics film</u>
• Thickness (ISO 4593)
• Tensile strength and elongation at break parallel and perpendicular to the extrusion direction (ISO 527)
<u>Plastics fabrics (with or without coating)</u>
• Grammage (ISO 3801)
• number of threads per 10 cm warp and weft direction
• Number of deniers in warp and weft direction
• Tensile strength and elongation at maximum tensile force in warp and weft direction (ISO 1421)
<u>Thread</u>
• Mass per unit of length (ISO 2060)
• Tensile strength and elongation (ISO 2062)
<u>Lifting loop</u>
• Dimensions (width and thickness)
• Mass per unit of length
• Tensile strength and elongation (ISO 13934-1/2)
Semi-manufactures and auxiliary materials:
• Control at each delivery the supplier's specifications and the conformity with the design type</td><td colspan="2">First sample control and control during production (minimum per UN-mark and with frequency as indicated):</td><td rowspan="5">Inspections to be performed in the case of production (1 x per 1000 IBCs/LPs per UN-mark with a minimum of 1x per year):
• Drop test
• Top lift test
• Topple test
• Righting test</td></tr>
<tr><td>• Visual control conformity with design type, seams and external condition</td><td>every sample</td></tr>
<tr><td>• Dimensions</td><td>1 x per 250 IBCs/LPs</td></tr>
<tr><td>• Filling, closing and hoisting devices</td><td>1 x per 250 IBCs/LPs</td></tr>
<tr><td>• Correctness and legibility of UN-marks</td><td>1 x per 250 IBCs/LPs</td></tr>
</table>

Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

Table 24: Composite Intermediate Bulk Containers (IBCs)				
Code	**Incoming control**	**Production control**		**Final control**
11HA1 11HA2 21HA1 21HA2 31HA1 31HA2 11HG1 11HG2 21HG1 21HG2 31HG1 31HG2 11HH1 11HH2 21HH1 21HH2 31HH1 31HH2	Control plastic inner receptacle, in accordance with procedure as described in the table for plastic IBC (without final control) Control outer part of the packaging in accordance with the procedure as described in the applicable IBC table for the used outer packaging (without final control)[1] Control composite type Semi-manufactures and auxiliary materials: • Control at each delivery the supplier's specifications and the conformity with the design type [1] For composite IBC with a metal outer cage, the cage is considered as a semi-manufacture	First sample control and control during production (minimum per UN-mark and with frequency as indicated):		Inspections to be performed in the case of production (1 x per 7500 IBCs per UN-mark with a minimum of 1x per year): • Drop test[1] • Hydraulic pressure test (type 21 and 31) • Leakproofness test (type 21 and 31)
		• Visual control conformity with design type/closures/connections and external condition	1 x per 10 IBCs	
		• Closing outer packaging	1 x per 10 IBCs	
		• Correctness and legibility of UN-marks	1 x per 10 IBCs	
		• Exact fitting inner receptacle in outer packaging	1 x per 10 IBCs	[1] temperature: - 18 °C not required

Annex 1 - Minimum requirements set for the quality plans of the quality assurance system for the production of packagings (including Intermediate Bulk Containers -IBCs and Large Packagings -LPs).

<table>
<tr><th colspan="4">Table 25: Composite Intermediate Bulk Containers (IBC) remanufactured (replacement of inner receptacle = cross bottling)</th></tr>
<tr><th>Proces</th><th>Incoming Control</th><th colspan="2">Production control</th><th>Final control</th></tr>
<tr><td rowspan="10">Composite Intermediate Bulk Containers (IBC) 31HA1 remanufactured (replacement of inner receptacle)</td><td rowspan="10">Control of the IBCs (exterior metal cage and pallet):
• Complete UN mark
• Is the external cage + pallet authorised to be used for remanufacturing conform the new prototype
• No important deformation, no damage to of the metal exterior cage and pallet

Semi-manufactures
(inner receptacle/auxiliary materials):

• Control at each delivery the supplier’s specifications and the conformity with the design type</td><td colspan="2">Control during production with frequency as indicated:</td><td rowspan="3">Inspections to be performed in the case of production (1 x per 7500 IBCs per UN-mark with an equal repartition between the authorised outer metal cages + pallets and with a minimum of 1x per year):

• Drop test[1]
• Hydraulic pressure test
• Leakproofness test</td></tr>
<tr><td>• Visual control conformity with design type/closures/connections and external condition</td><td>Every IBC</td></tr>
<tr><td>• Verification closing of the external metal cage</td><td>Every IBC</td></tr>
<tr><td>• Correctness and legibility of UN-marks</td><td>Every IBC</td><td rowspan="3"></td></tr>
<tr><td>• Exact fitting inner receptacle in outer metal cage</td><td>Every IBC</td></tr>
<tr><td>• Control leakproofness test equipment [1]</td><td>1 x per 8 hours</td></tr>
<tr><td>• Leaktightness of the IBCs [1]</td><td>Every IBC</td><td rowspan="3">[1] temperature: -18°C not required</td></tr>
<tr><td>• Completeness of the IBC, no missing elements (screws, ….)</td><td>Every IBC</td></tr>
<tr><td colspan="2">[1] Not applicable if the manufacturer of the inner receptacle provides evidence of testing.</td></tr>
</table>