

QSM 25 - Quality assurance measures for composite IBCs with plastics inner receptacle of types 11HZ1, 11HZ2; 21HZ1, 21HZ2; 31HZ1, 31HZ2

1. On-receipt inspection

Raw materials should be inspected upon delivery with regard to compliance of material characteristics with the approved design type. This should be done

- by means of supplier's test report acc. DIN EN 10204-2.2 (August 1995) and additional tests acc. to test plan,
- by means of supplier's specific test report acc. DIN EN 10204-2.3 (August 1995) or
- equivalent tests.

If only a supplier's test report acc. DIN EN 10204-2.2 (August 1995) for the raw material is submitted the melt index acc. ISO1133 (February 1992) should be determined for each lot.

For plastics with crosslinked structure the degree of crosslinking should be determined within the tests during production. The bending test is described under Point 6.

Required finished or semi-finished products (frames, hinges, closure, valves) should be inspected upon delivery with regard to compliance of material characteristics and dimensions with the approved design type. This should be done

- by means of supplier's test report acc. DIN EN 10204-2.2 (August 1995) and additional tests acc. to test plan,
- by means of supplier's specific test report acc. DIN EN 10204-2.3 (August 1995)
- by means of supplier's inspection certificate DIN EN 10204-3.1B (August 1995) or
- equivalent tests.

Design type tested (e. g. TÜV, DVGW, BAM, EMPA, TNO) components or parts with high safety requirements (e. g. discharge valves, valves) should be tested upon delivery by sampling inspection acc. to test plan with regard to compliance with the approved design type. This should be done by means of an inspection certificate acc. to EN 10204-3.1B (August 1995).

For finished or semi-finished products (e. g. screw caps), which the packer supplies by third parties, the on-receipt inspection should be carried out detectable by the packer on basis of the supplied conformable approval.

2. Tests during production

2.1 Tests before start-up of production

The supervision of the quality assurance of production should occur under consideration of fixed instructions. Before the start-up of production and with each change of design type the appropriate settings of the machinery and installations should be assured and documented.

Before the release of production the following features should be checked and documented on at least one prototype. (For composite IBCs with flexible plastics inner liners the tests are to be carried out acc. to QSM 22 Point 2.1.) For composite IBCs with rigid plastics inner receptacles the following features should be checked and documented:

- Determination of inner receptacles mass
- Minimum wall thickness
- Determination of measures
- Correctness, durability and legibility of marking

Before start-up or fundamentally changes of series production (e. g. change of raw materials or tools) for IBCs of codes 21, 31 an internal pressure test (e. g. acc. to ADR, Subsection 6.5.4.8) should be carried out.

2.2 Tests during production

During the production the appropriate machine settings and installations should be monitored continuously and the following features are to be checked and documented:

- Determination of inner receptacles mass
- Determination of measures
- Minimum wall thickness
- Appearance welds and joints (visual)
- Correctness, durability and legibility of marking
- For plastics with crosslinked structure: degree of crosslinking, bending test

3. Assembly and completion

During the assembly and completion the following features should be checked and documented:

- Well running of movable parts
- Appearance seams (visual)
- Check of the fastenings

4. Final inspection

On finished packagings the following tests should be carried out and documented:

- Drop test for IBC of code 11
- Leakproofness test for packagings of codes 21, 32
- Internal pressure test (hydraulic) for IBC of codes 21, 32
- Determination of mass
- Stacking test or crush resistance test
- Correctness, durability and legibility of marking
- Function test of service equipment

5. Completeness and correctness of documentation

Completeness and correctness of documentation (handling and operating instructions) should be assured for each delivery.

6. Procedure and evaluation of bending test

6.1 Production of test piece

By means of a cutting tool a test piece (diagonally to the main direction of the plastics) is to be cut out of an inner receptacles section. The receptacles inside is to be marked on the test piece.

Dimensions of test piece: Width: 25 mm
 Length: ca. 150 mm
 Thickness: Product thickness

The test piece is to be conditioned for 24 hours at 23°C and 50% relative humidity of air.

6.2 Test description

The test piece is to be folded by 180° around its transverse so that the sides fit completely. Thereby the receptacles inside should be within the folding tensions area. A vice with appropriate chop length may be used e.g. as folding tool. The test is to be carried out at ambient temperature.

6.3 Criteria for a positive test result

There have to be no visible cracks after the folding. If there are cracks, test pieces from at least two more receptacles of the same lot have to be taken and the test has to be repeated. If cracks occur again, the lot has to be rejected.