Stoppers for light-weight bottles

Directory

Effective

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1 Delivery

The delivery will be effected according to technical delivery agreements (TLV, organisation guideline 185/95).

2 Design

Basic elastomer:	Bromobutyl rubber
Rubber compound:	RL 5-54-1
Surface:	30 cm²
Colour:	red

3 General Chemical Requirements

The requirements of the monograph of the European Pharmacopoeia for Rubber closures for containers for aqueous parenteral preparations, for powders and for freeze-dried powders (Ph. Eur. 3.2.9, 01/2008:30209, corrected 7.0) are fulfilled.
Applicable documents: DIN ISO 8536 part 2

3.1 Appearance

Stoppers for light-weight bottles are red, elastic, homogeneous stoppers made of bromobuytl rubber, without spots and accidental occlusions (e.g. fibres, other particles, rubber wastes). The stoppers are delivered cleaned, slightly siliconized and not waxed so that they are suitable for use without further treatment. The stoppers are not stuck together. They have a punching edge. After the second steam sterilization according to DIN ISO 8871, the properties of the stoppers according to this specification should not be lost.

3.2 Identity (TP-7480198)

A small part of rubber (approx. 50 mg) is placed on a sheet copper and heated in the flame of a bunsen burner. The flame shows a green colour in the presence of halogens in the substance. Before performing this test the sheet copper is made red-hot until the flame is no longer greenish coloured.

3.3 Residue on Ignition (2.4.16)

The determination of the residue on ignition is effected at the original stoppers. 1.00 g of the stopper are incinerated at 600 °C. The residue on ignition is 45.0 ± 2.0 %.

3.4 Degree of Siliconization (TP-7468238)

The degree of siliconization is 0.005 to 0.020 mg silicone fluid/cm² (slightly siliconized).
The deviation is 0.0.

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3.5 Density (TP-7460278)

The density is 1.315 ± 0.025 g/cm^3. The deviation is 0.0.

4 General Physical and Technical Requirements

The requirements of the monograph of the European Pharmacopoeia for Rubber closures for containers for aqueous parenteral preparations, for powders and for freeze-dried powders (Ph. Eur. 3.2.9, 01/2008:30209, corrected 7.0) are fulfilled.

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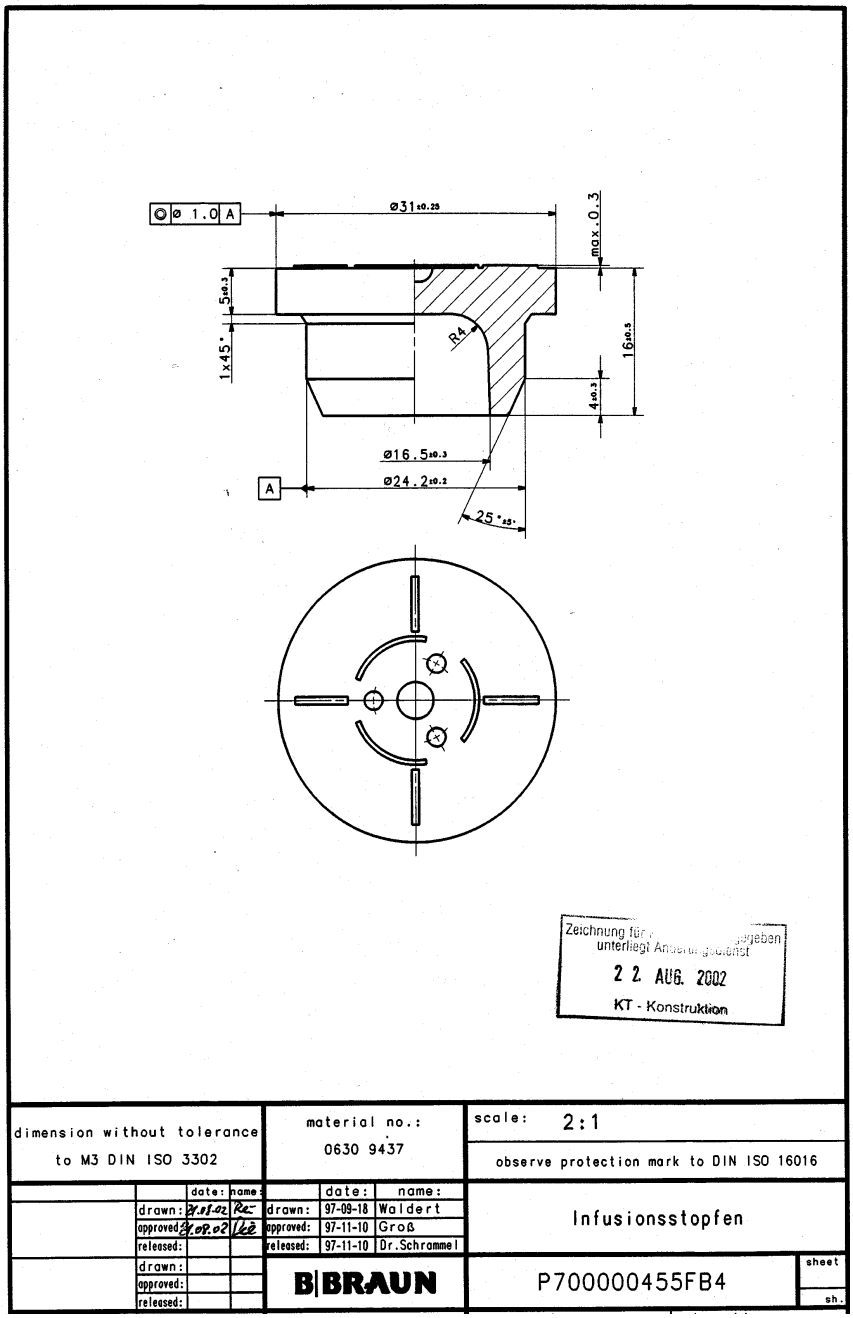
4.1 Identity (TP-7201001)

The stoppers correspond to the drawing P700000455FB4.



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4.2 Cleanliness (TP-7201002)

The stoppers do not show any impermissible soilings The AQL is 0.4.

4.3 Moulding (TP-7201006)

The stoppers are completely shaped according to the drawing. The stoppers are coplanar and free of pores respectively thickenings (projections) which have a negative effect on the density in its assembled condition. The AQL is 0.4.

4.4 Material Excess (TP-7201004)

The stoppers do not show any impermissible material ridges. The AQL is 0.4.

4.5 Colour (TP-7201010)

The stoppers are red. The deviation is 0.0.

4.6 Outside Diameter Edge of Lid (Measurement with Profile Projector, TP-7202001)

The individual values of the outside diameter of the edge of lid of the stoppers vary between 31.00 ± 0.25 mm. The punching edge remains unconsidered. The AQL is 0.4.

4.7 Outside Diameter of Seat (Measurement with Profile Projector, TP-7202001)

The individual values of the outside diameter of the seat of the stoppers vary between 24.2 ± 0.2 mm. The AQL is 0.4.

4.8 Thickness Edge of Lid (Measurement with Profile Projector, TP-7202001)

The individual values of the thickness of the edge of lid of the stoppers vary between 5.0 ± 0.3 mm. The AQL is 0.4.

4.9 Height of Stoppers (Measurement with Profile Projector, TP-7202001)

The individual values of the height of the stoppers vary between 16.0 ± 0.5 mm. The AQL is 0.4.

4.10 Hardness Shore A

The hardness Shore A is 43 ± 5. The deviation is 0.0.

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4.11 Application Technical Properties

4.11.1 Prepartion of Specimen

The stoppers are put into the bottles, fixed in the bottles with a flange cap and autoclaved.

4.11.2 Retention of the Stopper (Measurement with Weight, TP-7207005)

The test spike must not slip out of the stopper. The deviation is 0.0.

4.11.3 Penetrability of the Stopper (Measurement with Universal Testing Machine, TP-7207002)

The stopper can be penetrated. The deviation is 0.0.

4.11.4 Detached Fragments (Measurement with 8-fold Measuring Lens, TP-7201012)

There are no inadmissible fragments (punched parts of the stopper) in the water of the used bottles. The deviation is 0.0.

5 Biological and Microbiological Requirements

5.1 Biological reactivity test

Biological reactivity tests are only carried out when qualifying suppliers or when considerable changes in the process for manufacturing the stoppers.

5.1.1 Biological reactivity test in vitro

The stoppers fulfil the in vitro biological reactivity tests of the USP.

5.2 Test for Microbial Contamination (2.6.12)

Preparation of the test solution. The test quantity is put into 100 ml of a rinsing liquid that contains 0.9 % NaCl and 0.1 % of Tween 80. It is shaken at room temperature on a laboratory shaker at approximately 170 rpm for 30 - 60 minutes.
The test is carried out with 5 stoppers.
Limit ≤ 10 CFU/stopper

5.3 Test for Bacterial Endotoxins (2.6.14)

Preparation of the test solution: 40 ml aqua a.i./stopper. Mix 0.1 ml of the test solution with 0.1 ml of lysat.
The test is carried out with 5 stoppers.
Limit ≤ 5 I.U./stopper

End of the Specification

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Document administration

Amendment information

Version	Description of the changes
2.0	- Changed limit of soluble zinc from 5 mg into 5 µg per ml. - Modification of Identity (3.1). - Changes technical test methods in test procedures. - Deleted manufacturer defects (3.3) - Biological reactivity test in vitro deleted. - Changed limit of bacterial endotoxins from ≤ 10 IU into ≤ 5 IU
3.0	- Internal Amendments - 2 General Chemical Requirements changed from DIN 58363 part 6 to DIN ISO 8536 part 2 - 2.2.7 Heavy metals (2.4.8) newly defined - 2.2.8 Soluble zinc newly defined - 2.2.9 Residue on evaporation newly defined - 2.2.10 Volatile sulphides newly defined - Enclosure B methods and reagents revised
4.0	- Internal Amendments - 2 Design added - 2.1 Identity (revision level 03) changed in 3.1 Appearance (revision level 04) - 3.2 Test for Identity (TP-7480198), 3.4 Residue on Ignition (2.4.16), 3.5 Degree of Siliconization (TP-7468238), 3.6 Density (TP-7460278) in General Chemical Requirements added - 4.1 revised drawing added - 4.10 Hardness Shore A in General Physical and Technical Requirements added - Biological reactivity test in vitro added - Biological reactivity test in vivo cancelled - Supplier specific appendix Helvoet Pharma Belgium NV, characteristics in specification added and appendix cancelled - Supplier specific appendix STELMI Trading International cancelled
5.0	- 3.6 Density changed from 1.33 ± 0.04 g/cm^3 to 1.315 ± 0.025 g/cm^3 - 4.10 Hardness Shore A changed from 45 ± 5 to 43 ± 5
6.0	Actualization of references without change in requirements: - 3.0: Update of reference of the European Pharmacopoeia - 3.0: Deletion of the details

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	- 4.0: Update of reference of the European Pharmacopoeia

Title: Stoppers for light-weight bottles (6309437) Initiator: Nicole-Eva ? Ellenberger

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