

PIEtec XL

FT012/02_en

Specifications

Production: Production process by individual moulding

Size specifications ⁽¹⁾:

Length (48 mm)	Nominal value ± 0.50
Diameter (30.5 mm)	Nominal value ± 0.30
Macro-granulate chamfer	5.0 mm at 45°
Micro-granulate chamfer	

Control points:

1. Humidity ⁽²⁾	6.0% ± 2.0
2. Specific weight ⁽¹⁾	<p><i>PIEtec XL:</i> XL 280 kg/m³ ± 20 Macro-granulates 295 kg/m³ ± 20 Micro-granulates 260 kg/m³ ± 20</p> <p><i>PIEtec XL Plus:</i> XL 270 kg/m³ ± 20 Macro-granulates 285 kg/m³ ± 20 Micro-granulates 260 kg/m³ ± 20</p>
3. Resistance to boiling water ⁽³⁾	Absence of disaggregation
4. Sensory analysis ⁽⁵⁾	Neutral
5. Capillarity ⁽⁵⁾	< 2 mm
6. Residual peroxide ⁽⁴⁾ ⁽⁵⁾	< 0.1 mg/cork stopper
7. Residual solids ⁽⁵⁾	< 1.5 mg/cork stopper
8. Torsion ⁽⁶⁾	<p>Angle > 30° Momentum > 40 daN.cm Shear stress > 7 daN/cm²</p>
9. Liquid seal capability ⁽⁷⁾	100% ≤ 6.0 bar
10. 2,4,6 - TCA ⁽⁵⁾	<p><i>PIEtec XL:</i> < 1,5 ng/L (micro-granulates) <i>PIEtec XL Plus:</i> < 0,8 ng/L (micro-granulates)</p> <p>PCA < DL TeCA < DL TBA < DL</p>

Standards:

⁽¹⁾ NP 4351 / NP 2803-1	⁽²⁾ NP 4351 / NP 2803-02	⁽³⁾ NP 4351 / NP 2803-7
⁽⁴⁾ SYSTECODE	⁽⁵⁾ Internal Method	⁽⁶⁾ NP 4351 / NP 2803-6
⁽⁷⁾ NP 2803-5		



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Manufacturing process

PIEtec XL cork stoppers are produced with the latest technology available in the cork industry.

PIEtec XL and PIEtec XL Plus cork stoppers are technical cork stoppers specifically aimed at bottling sparkling wines, and are produced from cork granulates with two different granulometries, using an exclusive moulding system to include both granulometry ranges in the same operation. This technique allows for more homogeneous cork stoppers to be obtained, ensuring a more uniform behaviour at the level of mechanical performance, (elasticity, compression force, resistance to boiling water and liquid seal capability). All products used in producing PIEtec XL and PIEtec XL Plus cork stoppers comply with FDA requirements.

In order to fulfil all customer demands, Grupo Piedade focuses on three priorities:

- 1) Organoleptic control (risk limited to organoleptic deviations resulting from the presence of TCA)
- 2) Mechanical properties
- 3) Visual appearance

TCA control

Three important stages allow for the TCA levels to be controlled and limited to values below 1.5 ng/L:

- **Raw material (Cork):** raw material used in producing PIEtec XL and PIEtec XL Plus cork stoppers comes from cork exclusively selected, bought and processed by Grupo Piedade. Quality control is assured throughout the process of production, storage, transport and production of cork granulates.
- **Steam treatment:** the granulates are disinfected using a continuous steam or water system, which allows for the residual TCA values to be reduced.
- **Control of TCA levels by GC-MS:** Grupo Piedade relies on its own laboratory and quality control systems. Representative samples at each production phase are analysed by GC-MS.

Mechanical properties

The individual moulding process used in the PIEtec XL and PIEtec XL Plus cork stoppers allows for:

- Good distribution of granulates, control over the distribution of the two granulometries
- Homogeneous density and mechanical properties, good elastic return
 - a) Uniform behaviour of the cork stoppers, whether during the bottling process or at extraction
 - b) Excellent seal capability
- The control techniques used during production, washing and treatment of the cork stopper surface, allow for the presence of dust residue on the final product to be controlled.

Visual appearance

The densimetric tables for selecting the particles allow for a uniform and homogeneous profile to be obtained. The size of the granulates used (from 0.5 to 2 mm for the part in contact with the wine and 3 to 7 mm for the body) and the use of the individual moulding process ensure a compact visual appearance with the possibility of carrying out a specific customisation on the final product.

Aside from this, the visible portion of the PIEtec XL and PIEtec XL Plus cork stoppers after bottling is the same as that of the traditional cork stopper used.