

# Product Specification DG-ML-0103E



Issue no. 1 from 04.03.2008

Page 1 of 3

## Screw cap made of Polybutylene terephthalate (PBT)

### 1. Material / Product description

Polybutylene terephthalate – with glass fibre reinforced;  
Cat. No. 29 240xx, 29 227xx

### 2. Properties

#### a) Chemical Resistance

|                        |           |
|------------------------|-----------|
| Acids – concentrated - | good      |
| Acids – dilute -       | good      |
| Alcohols               | very good |
| Alkalis                | poor      |
| Aromatic Hydrocarbons  | good      |
| Greases and Oils       | good      |
| Halogens               | good      |
| Ketones                | very good |

#### b) Electrical Properties

|                                           |            |
|-------------------------------------------|------------|
| Volume resistivity (IEC 60093) (Ohm · cm) | $>10^{15}$ |
| Surface resistivity (IEC 60093) (Ohm)     | $>10^{15}$ |

#### c) Mechanical Properties

|                                                                      |        |
|----------------------------------------------------------------------|--------|
| Strain at break (5 mm/min) ISO 527 (%)                               | 3      |
| Impact strength (Charpy) ISO 179 ( $\text{kJ} \cdot \text{m}^{-2}$ ) | 60     |
| Tensile modulus (1 mm/min) ISO 527 (MPa)                             | 10,000 |
| Tensile strength (5 mm/min) ISO 527 (MPa)                            | 145    |

#### d) Physical Properties

|                                                           |      |
|-----------------------------------------------------------|------|
| Density ( $\text{g}/\text{cm}^3$ )                        | 1.53 |
| Moisture absorption (23°C rel. humidity 50%) - ISO 62 (%) | 0.15 |

#### e) Thermal Properties

|                                                    |     |
|----------------------------------------------------|-----|
| Heat-distortion temperature – 0.45 MPa ISO 75 (°C) | 220 |
| Heat-distortion temperature – 1.8 MPa ISO 75 (°C)  | 205 |
| Operating temperature (°C)                         | 130 |
| Max. temperature (°C)                              | 180 |

|                    | prepared         | approved     |               |             | authorized    |
|--------------------|------------------|--------------|---------------|-------------|---------------|
| Organisation/ Name | MM/Lütkepohl     | MQM/Brien    | MM/Thiele     | MP-T/Kopp   | MG/Reiche     |
| Date:              | 04.03.2008       | 04.03.2008   | 04.03.2008    | 04.03.2008  | 04.03.2008    |
| Signature:         | signed Lütkepohl | signed Brien | signed Thiele | signed Kopp | signed Reiche |

|                                                                                              |                                                                                                                                                                                                                           |
|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p style="text-align: center;"><b>Product Specification</b><br/><b>DG-ML-0103E</b></p>       | <div data-bbox="981 190 1412 280">  </div> <div data-bbox="981 291 1316 369"> <p>Issue no. 1 from 04.03.2008<br/>Page 2 of 3</p> </div> |
| <p style="text-align: center;"><b>Screw cap made of Polybutylene terephthalate (PBT)</b></p> |                                                                                                                                                                                                                           |

### 3. Conformity Standards

In accordance to the following guidelines:  
2002/72/EG  
BfR Recommendation  
FDA: 21CFR 177.1660, 21CFR 178.2010, CFR 21.3297, 21CFR 178.3860

### 4. Identification

Every packaging unit (pouch) is equipped with a DURAN Group label receipt which e.g. contains the following information:

- article number
- date
- EAN - barcode

Individual cartons which are part of a pallet batch are marked in accordance with the palleting standards.

### 5. Quality Management

The target is to manufacture a constant, previously agreed to standard of quality, to secure this standard with quality inspections as well as to take quick corrective measures in case of any deviations in order to be able to carry out production operations within permissible limits on a stable basis.  
In order to determine any deviations or shifts of quality that may be detected, the inspection is integrated in the manufacturing process (worker self-inspections).  
The proper relationships of inspection range and inspection criteria are guaranteed by means of defined inspection specifications.

### 6. Complaint Management

Customer complaints may only submitted to the sales unit that originally sold the product.  
Complaints must refer to the quality limit values or properties stated in the DURAN Group specification.  
Post-processing, sorting, scrapping or returning potentially faulty items may entail costs; it is essential that any actions are agreed upon in advance between the customer and DURAN Group.

### 7. Scope

This product specification is the basis for quality considerations at DURAN Group and at its customers/suppliers. It applies to all products produced and supplied since this specification came into effect.

|                    | prepared         | approved     |               |             | authorized    |
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# Product Specification DG-ML-0103E



Issue no. 1 from 04.03.2008

Page 3 of 3

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### 8. Validity

This specification is valid as from 18.01.2008 onwards and replace all previous data sheets and specification. In the case of disagreement only the German version of this specification is valid.

|                    | prepared         | approved     |               |             | authorized    |
|--------------------|------------------|--------------|---------------|-------------|---------------|
| Organisation/ Name | MM/Lütkepohl     | MQM/Brien    | MM/Thiele     | MP-T/Kopp   | MG/Reiche     |
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