

## DURAN<sup>®</sup> laboratory bottle, square with DIN thread, GL 45

Item No.: 21 820 XX



**Attention:** The safety instructions are only valid for original DURAN<sup>®</sup> products. Therefore, please pay attention to the SCHOTT DURAN<sup>®</sup> trademark which guarantees proven DURAN<sup>®</sup> quality and highest safety during application.

### Working under pressure and vacuum

- DURAN<sup>®</sup> laboratory bottles are, with the exception of the pressure-resistant DURAN<sup>®</sup> pressure plus bottles, in general not suitable for use under pressure or in a vacuum.

### Temperature resistance

- The maximum permissible short-term operating temperature for DURAN<sup>®</sup> is 500 °C.
- The maximum thermal shock resistance is  $\Delta T=100$  K.
- Only subject DURAN<sup>®</sup> glassware to sudden temperature changes within the recommended limit for thermal shock resistance ( $\Delta T=100$  K). This applies in particular to large-volume bottles.
- Because of the bottom geometry and the wall thickness DURAN<sup>®</sup> must not be heated directly with an unshielded flame. When using an electronic heating plate or water bath laboratory bottles have to be heated gradually.
- Before using, the glass surfaces of the DURAN<sup>®</sup> glass bottles have to be checked for damages such as scratches, cracks or nicks. Damaged bottles must not be used for safety reasons.

### Temperature resistance at low temperatures

- DURAN<sup>®</sup> can be cooled down to the maximum possible negative temperature and is therefore suitable for use with liquid nitrogen (approx. – 196 °C). As the geometry influences the thermal properties, it is recommended that only small-volume glass vessels be exposed to very low temperatures. Moreover the thermal properties of any screw caps or other components used must be borne in mind.
- When working at low temperatures, the effect of any expansion of a DURAN<sup>®</sup> vessel's contents must be borne in mind. Therefore the bottle should be frozen slanted at an angle of 45 °, filled to a maximum of 3/4 of its capacity (to enlarge the surface area).
- During cooling and thawing ensure that the temperature difference does not exceed 100 K. In practice, therefore, stepwise cooling and heating are recommended.
- Frozen contents can be thawed by immersing the bottle in a liquid bath while taking care that the temperature difference between the contents and the bath does not exceed  $\Delta T=100$  K. This will ensure that the frozen material is warmed uniformly from every side without damaging the bottle. The contents can, however, also be thawed slowly from above, so that the surface melts first, allowing the material to expand.

### **Autoclaving/ Sterilisation**

- DURAN<sup>®</sup> laboratory bottles, square are autoclavable/ sterilizable
- When autoclaving sterilising, the screw cap should only be loosely applied, since with a closed bottle pressure equalisation does not take place. Pressure in the bottle may result in breakage.
- An ideal complement is the membrane cap that allows pressure equalisation through a PTFE membrane and hence the cap can be tightly closed. Therefore the ease of use is greatly improved and the risk of glass breakage nearly excluded.

## Cleaning

- Cleaning should be carried out manually in a soaking bath or automatically in a dishwasher.
- To care properly for laboratory glassware, it should be washed immediately after use at low temperature, on a short cycle and with low alkalinity.
- Laboratory apparatus that has come into contact with infectious substances or microorganisms should be treated in accordance with the current guidelines.

### Manual cleaning

- The generally recognized method is to wipe and rub the glass with a cloth or sponge soaked in cleaning solution. Abrasive cleaners and abrasive sponges should not be used on laboratory glassware as these can damage the surface of the glass.
- Surface damage can affect the glass properties and limit further use of the product.
- Laboratory glassware should not be soaked for long periods in alkaline media at more than 70 °C since this can have an adverse effect on the printing and may cause glass corrosion. Also to be avoided is severe mechanical action e.g. scraping using a metal spoon.

### Automatic laboratory glassware reprocessing

- When cleaning in a dishwasher, load so that there is no glass-to-glass contact (especially the threads) to avoid chips or abrasions.