

## Special quality and testing regulations Bottle-blowing/Filling

### 3-1 Scope

These special quality and testing regulations specify the contents and the extent of the requirement profile associated with the bottle-blowing/filling of PET beverage containers.

Unless specified otherwise, these special quality and testing regulations are only applicable in connection with the general quality and testing regulations, and they also apply in connection with the 'recyclate manufacturing' and 'preform manufacturing' modules.

### 3-2 Process description - Bottle-blowing/Filling procedure

The bottle-blowing/filling processes primarily follow the sequence given below:

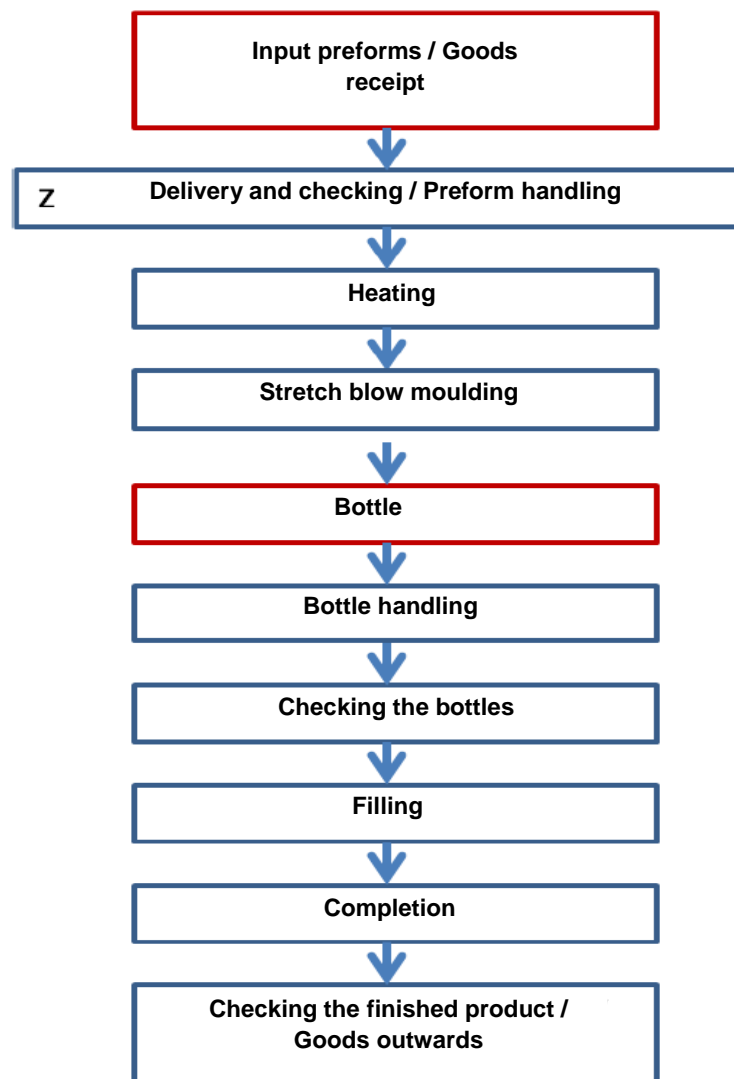


Figure 3-1: Bottle-blowing/filling process

The actual process is preceded by the goods receipt stage, which involves the specified requirements associated with the origin and quality of the raw material (in this case, preforms made of PET).

PET containers and bottles are manufactured using stretch-blow-moulding machines.

- **Preform handling:** The preforms arrive at the sorting machine. They are isolated, and slide towards the top (with respect to the outlet) through a supply track. First, an infeed starwheel brings the preforms to the desired level of division. The preforms are then slipped onto the heating spigots of the furnace.
- **Heating:** The preforms are heated up using infrared heating rods. A watercooled protective shield screens the sensitive closure area, in order to avoid deformations. The preforms rotate around their own axis.
- **Stretch blow moulding:** The heated preforms are kept and fixed in the form in question using the bearing ring. During the locking of the form, the blowing nozzle descends and the blowing air is switched on.

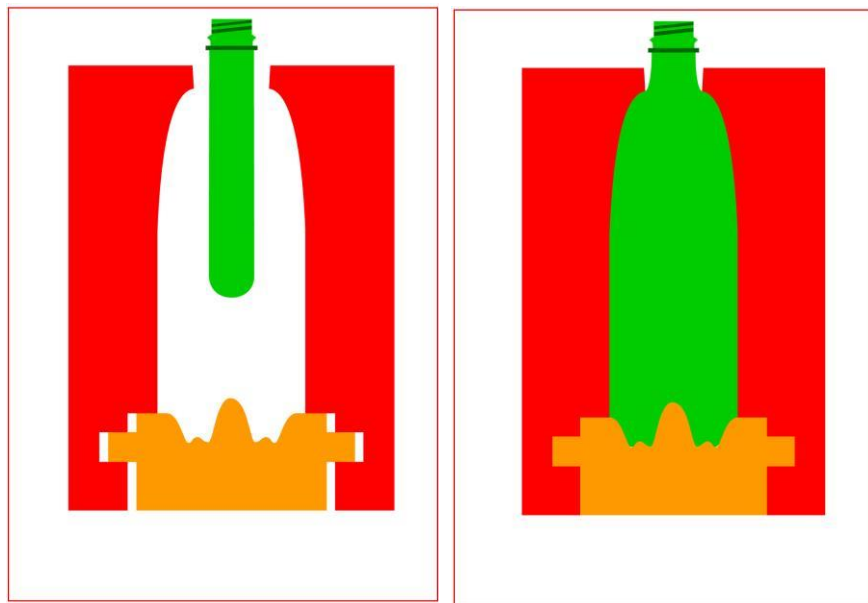


Figure 3-2: General structure - Stretch blow moulding

- **Bottle handling:** The bottles are collected by an outfeed starwheel. The defect-free bottles are transferred to the bottle conveyor, while the rejected bottles are deposited into a container.
- The filling machines fulfil the specific requirements associated with the most diverse products. They can be classified into height-fillers and volume-fillers, mechanically-controlled and electropneumatically-controlled systems, and counterpressure filling systems and gravitation filling systems.



Figure 3-3: Filling system

The output of the bottle is defined at the end of the overall process:  
The filled beverage bottles are tagged or imprinted with seals and labels.

### 3-3 Quality regulations

The described process stages should comply with the following requirement criteria:

Control /Measuring point	Quality criterion	Test method	Criterion for passing	Inspection interval
<b>Goods receipt</b>	Specific test report of the delivered product	Control	Alignment with product specification	Each batch
	Visual inspection of the preform	Test as per quality manual	Alignment with product specification	Each delivery
<b>Output - Bottle-blowing</b>	AA content	Analysis of the filling material (water) after storage (10 days at 40°C ) as per DIN 1186-1, part 1, AA content determination through	< 10 µg/l in the filling material (water)	1x per quarter
	Colour	DIN 5033 T 1-9 - Dependent on wall thickness	QA approval	As per quality manual
	Compliance with the law on articles of daily use	Migration tests, sensory tests	Adherence to threshold values	As per quality manual
	Control Segment weight, form, enclosures	Measurement or visual inspection	Alignment with product specification	As per quality manual

<b>Output - Completion of the bottle</b>	Use of labels/sleeves	Purchase agreement	No use of PVC labels	As per purchase agreement
	Use of seals	Purchase agreement	Use of HDPE or PP (no PVC-containing print)	As per purchase agreement
	Use of glues	Purchase agreement	Water-soluble/ lye-soluble at temperatures > 60°C	As per purchase agreement

Table 3-1: Requirement criteria associated with bottle-blowing/filling

### 3-4 Monitoring

When it comes to the monitoring regulations, Section 3 of the general quality and testing regulations applies.

### 3-5 Labelling

When it comes to the labelling-related modalities, section 3.7 of the general quality and testing regulations applies.

As shown in the following image, quality-certified products/services are tagged with the certification mark of the quality association, along with an additional service-related phrase:



Beverage container using  
recyclates

### 3-6 Changes

Section 4 of the general quality and testing regulations applies to changes made to these special quality and testing regulations.