ABMI
Association of the Beverage Machinery Industry

Method sheet: Blow Moulder
Sheet no.: 050903 – 1.02
Date: June 2008

Machine: **Blow Moulder**
Criteria: **Top load of blown bottles**

Contents:

Top load of blown bottles

1. Definition: Machine and Criteria

One important parameter of bottles blow by a blow moulder is the top load of blown bottles.
The top load can be detected by using an pressure testing device.
For all actions the relevant safety instructions must be strictly adhered to.

Further related documents:

- MEBAK Band V
- TNO Nutrition and Food Research: Guidelines for an Industrial Code for Refillable PET Bottles, Edition 1, 1993-1994

2. Inspection

2.1 Scope

Detection of the top load of blown bottles by detecting the axial pressure resistance.

2.2 Apparatus

Pressure testing device according to DIN 52223.
Visual inspection of measurement device used by a person.

2.3 Procedure

Measurement of the vertical load of the empty bottle at the point of the bottle collapses (peak load).
The piston of the measuring unit should have a speed of 510 mm / min.
The top load depends on the kind of filled beverage (carbonated or non carbonated), on the nominal filling volume and on the perform weight. The measurement should be conducted after a minimum of 60 minutes after the production of the bottles.

3. Sampling

To check if the blow moulder is running at the right process, samples need to be taken from each station, proving the machine capability throughout all stations to meet the specified main dimensions.

Samples to be taken at nominal machine speed, after stabilization of process, suggested start of sampling after minimum 15 minutes and maximum 1 hour.

Take five complete rounds, i.e. 5 bottles of each station.

3.1 Calculation

Calculate the average $\overline{x}$ of the results following the formula:

$$\overline{x} = \frac{1}{n} \cdot \sum_{i=1}^{n} x_i$$

Calculate the resulting standard deviation $\overline{\sigma}$ following the formula:

$$\sigma = \sqrt{\frac{1}{n-1} \cdot \sum_{i=1}^{n} (x_i - \overline{x})^2}$$

Where the random sample range from i=1 to n (here 5)

3.2 Results and data sheets

3.2.1 Data sheet part (I/II)

Date: _____ Line: _____ Bottle shape: _____

Preform weight: _____ Nominal volume: _____ Miscellaneous: _____

3.2.2 Data sheet part (II/II)

number n:	top load [F][N]	top load [F][N]	top load [F][N]	top load [F][N]	top load [F][N]
	sample 1	sample 2	sample 3	sample 4	sample 5
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
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29					
30					
31					
32					
33					
34					
35					

number n:	top load [F][N]	top load [F][N]	top load [F][N]	top load [F][N]	top load [F][N]
	sample 1	sample 2	sample 3	sample 4	sample 5
36					
37					
38					
39					
40					

4. Evaluation and Documentation

4.1 Evaluation

Average of the results F _____ mm
Standard deviation σ_{load}: _____ mm
F_{set} min = _____ mm
F - σ = _____ mm

_____ F ≥ _____ $F_{(set)}$ - σ

4.2 Documentation

The Test is passed if the results fulfil aforesaid equation:

Passed ☐
Not passed ☐

Name and signature of inspector: _____