**Preform inspection**

As part of a holistic approach to quality control in preform production PETplanet Insider showcases for the second time an overview of preform inspection systems.

Even the smallest faults in PET preforms have a significant impact in bottle production and bottle quality. In the most severe cases, faulty preforms can even lead to malfunctions in the blow moulder. With ever increasing outputs in the blow moulding systems, perfect preforms are indispensable. This is where preform inspection systems come in: preform inspection systems check the preform's quality and reject faulty preforms immediately from the production line. Thus preform inspection becomes an essential part of process quality control. These are the participants:

**Intravis GmbH, Torus Technology Group, Sacmi Imola S.C., IMD Ltd. and Pressco Technology Inc. and Agr International**

Although the publishers have made every effort to ensure that the information in this market survey is up to date, no claims are made regarding completeness or accuracy.

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### Preform Inspection Systems

<table>
<thead>
<tr>
<th>Preform Inspection Systems</th>
<th>PreWatcher 4</th>
<th>PreWatcher III</th>
<th>Sample-PreWatcher</th>
<th>ColorWatcher Integrated</th>
<th>LayerWatcher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspection speed</td>
<td>Up to 100,000 objects/hour</td>
<td>Up to 72,000 objects/hour</td>
<td>Up to 1,200 objects/hour</td>
<td>8 preforms within 0.25s</td>
<td>Up to 144 objects/hour</td>
</tr>
</tbody>
</table>

### Inspected parameters:

#### Geometry / Body
- Contamination, length, diameter, shape, short shots, gate length, unmelted material, bubbles, oil & water marks, burn spots
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#### Thread area
- Contamination, thread dimensions, defects at the neck support ring, flash
- Contamination, thread dimensions, defects at the neck support ring, flash
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- Contamination, thread dimensions, defects at the neck support ring, flash
- Contamination, thread dimensions, defects at the neck support ring, flash

#### Mouth / Sealing surface
- Diameter, ovality, flash, scratches and notches on the sealing surface, defects at neck support ring
- Diameter, ovality, flash, scratches and notches on the sealing surface
- Diameter, ovality, flash, scratches and notches on the sealing surface, inner mouth wall inspection
- Diameter, ovality, flash, scratches and notches on the sealing surface, inner mouth wall inspection
- Diameter, ovality, flash, scratches and notches on the sealing surface, inner mouth wall inspection

#### Gate / Dome
- Contamination, grooves, holes, cracks, crystallisation
- Contamination, grooves, holes, cracks, crystallisation
- Contamination, grooves, holes, cracks, crystallisation
- Contamination, grooves, holes, cracks, crystallisation
- Contamination, grooves, holes, cracks, crystallisation

#### Colour
- Colour and intensity deviations \(\Delta L^*, \Delta a^*, \Delta b^*\), presence of UV blocker, barrier, nylon blocker and IR absorber (reheater)
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- Colour and intensity deviations \(\Delta L^*, \Delta a^*, \Delta b^*\), presence of UV blocker, barrier, nylon blocker and IR absorber (reheater)
- Colour and intensity deviations \(\Delta L^*, \Delta a^*, \Delta b^*\), presence of UV blocker, barrier, nylon blocker and IR absorber (reheater)
- Colour and intensity deviations \(\Delta L^*, \Delta a^*, \Delta b^*\), presence of UV blocker, barrier, nylon blocker and IR absorber (reheater)

#### Cavity number
- Cavity number reading, cavity related statistics, preform sorting according to cavity number
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- Cavity related statistics
- Cavity related statistics

### Further criteria

- Sorting possibility due to several reject stations
- Stress test with polarised light, high precision weight measurement, high precision dimension measurement
- Early warning stage, fast reaction time because inspection results available parallel to preform cooling
- Visualisation of barrier layers in 3D images

### Measurement of absence or presence of barrier material
- Yes
- Yes
- Yes
- Yes
- Yes

### Layer thickness & position measurement at distinctive points
- Yes
- No
- No
- Yes
- Yes

### Layer thickness & position measurement at the complete body by scanning
- No
- No
- No
- Yes
- Yes

### Features:

<table>
<thead>
<tr>
<th>Installation: Stand-alone</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation: Inline</td>
<td>Yes, but optimised for offline</td>
<td>Yes, optimised for inline</td>
<td>Yes, sampling</td>
<td>Yes, integrated into injection moulding machine</td>
<td>Yes, sampling</td>
</tr>
<tr>
<td>Side camera for cavity recognition</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Method: destructive / non destructive</td>
<td>Non destructive</td>
<td>Non destructive</td>
<td>Non destructive</td>
<td>Non destructive</td>
<td>Non destructive</td>
</tr>
<tr>
<td>Data base connection</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>