Unlock the Potential of Your Filling Line

A recent FDA approval means you now have a choice in glass packaging.

CORNING
1. CHALLENGES WITH CONVENTIONAL VIALS

Observation of filling lines shows many manufacturing issues are due to limitations of conventional glass containers which lead to lower quality and operational inefficiencies.

- Cracks, scratches and glass particulates lead to quality issues
- Damage prone surface leads to weakening and breakage
- High coefficient of friction (CoF) leads to "sticky" behavior

2. INNOVATIVE SOLUTION: VALOR® GLASS

Valor glass is a revolutionary product enabled by process innovations that deliver superior quality and cost reduction.

- Damage resistant external surface reduces particle generation by preventing scratches
- Engineered stress profile to actively prevent* cracks and increase load bearing strength
- Durable low CoF exterior surface coating that survives standard fill-finish operations

*In laboratory testing, new vials provide at least 30x protection against cracks than conventional glass vials.
3. **VALOR® VIALS INCREASE FILLING THROUGHPUT**

Valor vial’s high dimensional consistency and low coefficient of friction coating improves bulk filling line efficiency and throughput.

![Graph showing Filling Line Set Speed vs Effective Throughput](image)

- Vial friction is a bottleneck when running conventional vials.
- Conventional vials typically run at an efficiency of 50-70% which is an equivalent throughput of low to mid-200 vials per minute.
- Observed “maximum effective speed” with conventional vials is approximately 270 ± 60 vials per minute.

Valor vials can maintain high efficiency (>80%) at higher filling line set speeds.

4. **VALOR VIALS CAN LOWER MFG. FILLING COST**

Valor vial’s high dimensional consistency and low coefficient of friction coating improves filling line efficiency and throughput.

<table>
<thead>
<tr>
<th>Effective Line Throughput</th>
<th>Reduced Fill Cost ($/unit)</th>
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<tbody>
<tr>
<td><strong>1 Conventional Vials</strong></td>
<td></td>
</tr>
<tr>
<td>“Historical”</td>
<td></td>
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<tr>
<td>210 Vials PER MINUTE</td>
<td>60% efficiency at 350 vpm</td>
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<tr>
<td></td>
<td><em>Valor vials reduce downtime and interventions</em></td>
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<tr>
<td><strong>2 Valor Glass</strong></td>
<td></td>
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<tr>
<td>“Baseline”</td>
<td></td>
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<tr>
<td>280 Vials PER MINUTE</td>
<td>80% efficiency at 350 vpm</td>
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<tr>
<td></td>
<td><em>Valor vials enable higher line set speeds</em></td>
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<tr>
<td><strong>3 Valor Glass</strong></td>
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<tr>
<td>“Potential”</td>
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<tr>
<td>480 Vials PER MINUTE</td>
<td>80% eff. at 600 vpm</td>
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</tbody>
</table>

*Equivalent to $0.42/unit of value

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Efficiency is critical in drug manufacturing. Breaks, interventions, and rejects decrease manufacturing productivity and hurt supply reliability.

Valor Glass has a low coefficient of friction exterior coating which significantly reduces production downtime, enables increased manufacturing productivity, and has the potential to create immediate capacity with existing assets.

The future of glass packaging is here.

Learn more:
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