VERISEQ® Nucleation is an advanced controlled nucleation technology engineered to significantly improve the quality of the end product. With this innovative system, cryogenic ice fog circulates within a lyophiliser chamber, providing an optimal temperature for reliable and prompt top-down nucleation of the pharmaceutical formulations in the vial. This accelerates overall cycle time by up to 35%, reduces vial-to-vial variance, improves product uniformity and increases ice crystal size, leading to reduced water vapour resistance and less time for reconstitution. The technology is applicable to laboratory-, pilot- and production-scale lyophilisers. By using the same technology from development to commercialisation, VERISEQ speeds up and greatly facilitates the validation process.

**Nucleation variability with traditional lyophilisation**


Natural nucleation: smaller ice crystals, larger vial-to-vial variability. Same magnification factor used for this photo and the photo on page 2.
VERISEQ® Nucleation for laboratories. Improved lyophilisation through controlled nucleation.

Suitable for laboratories and pilot facilities, enabling them to test new formulations with controlled nucleation in the lyophilisation process. Adaptable to all lab-/pilot-scale lyophilisation units; requires 2 x 1-1/2” ports. Self-contained, fully automated one-button operation. PLC-controlled with HMI interface. Data logging.

**Technical characteristics**

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Lab/pilot lyophilisation units up to 3 m² shelf space</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>5 kW</td>
</tr>
<tr>
<td>Temperature range</td>
<td>–193 °C to 120 °C</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>10 barg max</td>
</tr>
<tr>
<td>Services</td>
<td>Liquid and gaseous nitrogen (dewar)</td>
</tr>
<tr>
<td>Electrical</td>
<td>230/120 V, 50 or 60 Hz, single-phase, 40 A</td>
</tr>
<tr>
<td>Weight</td>
<td>220 kg</td>
</tr>
<tr>
<td>Footprint</td>
<td>0.6 m width X 1.1 m depth</td>
</tr>
<tr>
<td>Height</td>
<td>1.3 m</td>
</tr>
<tr>
<td>Vacuum pump</td>
<td>Edwards RV12 dual-stage rotary; 0.001 mbar</td>
</tr>
</tbody>
</table>

**Benefits and operational characteristics**

- Suitable for laboratories and pilot facilities, enabling them to test new formulations with controlled nucleation in the lyophilisation process.
- Adaptable to all lab-/pilot-scale lyophilisation units; requires 2 x 1-1/2” ports.
- Self-contained, fully automated one-button operation.
- PLC-controlled with HMI interface.
- Data logging.

**Equipment features**

- PLC-controlled with HMI interface.
- Fully-automated operation.
- Easy to clean surface.
- Small footprint to maximise lab space.
- Convenient access to check on system’s performance.
- Ergonomic handle and wheels provide flexibility in (re)locating the unit.
- Simple and safe operation.
- Quiet operation.
- Easy connection to lyophiliser through 2x1-1/2” ports.

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