



# Does the perfect sterilization method exist?

Rev. 1 | November 2021

Several different sterilization technologies have been developed and most of them are nowadays available on the market. Care should be taken when choosing one of them as there are many disadvantages that we might not be aware of. The following table will help us better choose a sterilization technology, and more important: will help us choose the correct indicator that will tell us the effectiveness of the process.

Sterilization method	Advantages	Disadvantages	Terragene® Main Products
<b>Steam</b>	<ul style="list-style-type: none"> <li>✓ Nontoxic to patient, staff, environment.</li> <li>✓ Cycle easy to control and monitor.</li> <li>✓ Least affected by organic/inorganic soils among sterilization processes listed.</li> <li>✓ Rapid cycle time.</li> <li>✓ Penetrates medical packing, device lumens.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Deleterious for heat-sensitive instruments.</li> <li>✓ Microsurgical instruments damaged by repeated exposure.</li> <li>✓ May leave instruments wet, causing them to rust.</li> <li>✓ <b>Caution:</b> Potential for burns.</li> </ul>	<ul style="list-style-type: none"> <li>✓ BT220/2/4</li> <li>✓ PCDs</li> <li>✓ BT20</li> <li>✓ BD125X/1 &amp; /2</li> <li>✓ KBD8948X &amp; /1</li> <li>✓ CT22</li> <li>✓ CD29</li> <li>✓ IT26-1YS</li> <li>✓ IT26-C</li> <li>✓ IT27-3YS</li> <li>✓ BT21/22/23/24</li> <li>✓ BT50 &amp; MC1020</li> </ul>
<b>Hydrogen Peroxide Gas Plasma</b>	<ul style="list-style-type: none"> <li>✓ Safe for the environment.</li> <li>✓ Leaves no toxic residue.</li> <li>✓ Short cycles (no aeration needed).</li> <li>✓ Compatible with heat and moisture-sensitive items.</li> <li>✓ Simple to operate.</li> <li>✓ Compatible with almost all medical devices.</li> <li>✓ Minimal installation required (electrical outlet).</li> </ul>	<ul style="list-style-type: none"> <li>✓ Cellulose (paper), linens and liquids cannot be processed.</li> <li>✓ Small sterilization chamber.</li> <li>✓ Some endoscopes or medical devices with long or narrow lumens cannot be processed.</li> <li>✓ Requires synthetic packaging.</li> </ul>	<ul style="list-style-type: none"> <li>✓ BT91</li> <li>✓ BT93</li> <li>✓ BT95</li> <li>✓ BT96</li> <li>✓ CT40</li> <li>✓ CD43</li> <li>✓ CD40</li> <li>✓ CD42</li> </ul>
<b>100% Ethylene Oxide (ETO)</b>	<ul style="list-style-type: none"> <li>✓ Penetrates packaging, and device lumens.</li> <li>✓ Single-dose cartridge and negative pressure chamber minimizes the potential for gas leak and ETO exposure.</li> <li>✓ Simple to operate and monitor.</li> <li>✓ Compatible with most medical materials.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Some countries require ETO emission reduction of 90-99.9%.</li> <li>✓ Requires aeration time.</li> <li>✓ Small sterilization chamber.</li> <li>✓ ETO cartridges should be stored in flammable liquid storage cabinet.</li> <li>✓ Lengthy cycle/aeration time.</li> <li>✓ <b>Caution:</b> ETO is toxic, a carcinogen, and flammable.</li> </ul>	<ul style="list-style-type: none"> <li>✓ BT110</li> <li>✓ BT10</li> <li>✓ CD13</li> <li>✓ CD16</li> <li>✓ IT12</li> <li>✓ BT40</li> </ul>
<b>Peracetic Acid</b>	<ul style="list-style-type: none"> <li>✓ Rapid cycle time.</li> <li>✓ Low temperature (50-55°C) liquid immersion sterilization.</li> <li>✓ Environmental friendly by-products.</li> <li>✓ Sterilant flows through endoscope which facilitates salt, protein and microbe removal.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Point-of-use system, no sterile storage.</li> <li>✓ Used for immersible instruments only.</li> <li>✓ Some material incompatibility.</li> <li>✓ One scope or a small number of instruments processed in a cycle.</li> <li>✓ <b>Caution:</b> Potential for serious eye and skin damage (concentrated solution) with contact.</li> </ul>	<ul style="list-style-type: none"> <li>✓ IT400 PAA</li> <li>✓ IT401 PAA</li> <li>✓ BT400 PAA</li> </ul>
<b>Formaldehyde steam sterilization</b>	<ul style="list-style-type: none"> <li>✓ Relatively low cost.</li> <li>✓ Faster than EtO.</li> <li>✓ Most loads are immediately available after process.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Not FDA cleared.</li> <li>✓ Poor penetration.</li> <li>✓ Requires high humidity.</li> <li>✓ <b>Caution:</b> Mutagen and potential carcinogen.</li> </ul>	<ul style="list-style-type: none"> <li>✓ BT102</li> <li>✓ BT100</li> <li>✓ CT50</li> <li>✓ CD50</li> <li>✓ BT50</li> <li>✓ CD53</li> </ul>
<b>Dry heat</b>	<ul style="list-style-type: none"> <li>✓ Nontoxic to patient, staff, environment.</li> <li>✓ Easy to install.</li> <li>✓ Low operating cost.</li> <li>✓ High penetrance.</li> <li>✓ Non-corrosive.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Long cycles.</li> <li>✓ Very high temperatures.</li> </ul>	<ul style="list-style-type: none"> <li>✓ BT30</li> <li>✓ CD33</li> <li>✓ CD30</li> <li>✓ IT31</li> <li>✓ BT40</li> </ul>

References: <https://www.cdc.gov/infectioncontrol/guidelines/disinfection/tables/table6.html>

