Pore Size Estimates for Filters Explained - HPLC Primer

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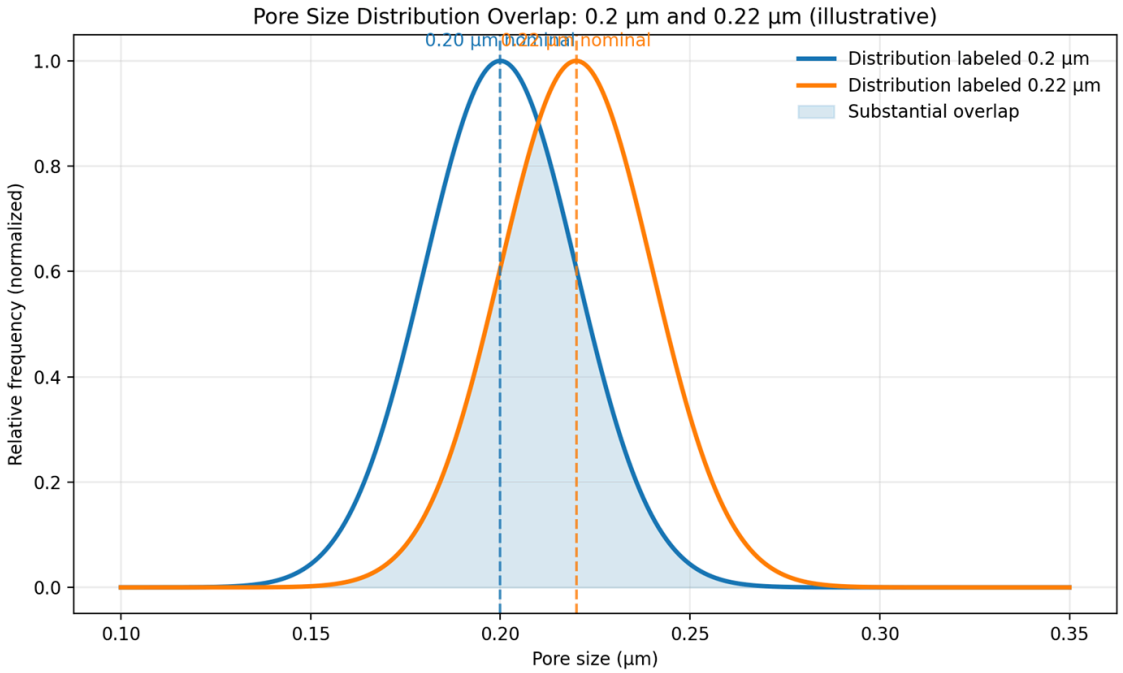
Pore Size and Porosity Explained

When methods specify 0.2 µm, it reflects a nominal pore size derived from the membrane's pore size distribution—not a single, exact pore diameter. In practice, filters labeled 0.22 µm fall within the same nominal classification and are engineered to meet the same performance expectations (e.g., microbial retention, integrity criteria) typically associated with "0.2 µm" in validated methods.

What this means for execution:

- A 0.22 µm membrane represents the same nominal pore size class as 0.2 µm.
- It should meet the method's specifications and performance requirements when those requirements are based on nominal classification and validated performance (e.g., bacterial challenge claims, integrity test limits).
- Always verify any method- or customer-specific requirements (e.g., if a protocol explicitly restricts the labeled rating).

Illustration: Pore Size Distribution Overlap
The chart below shows two overlapping pore size distributions labeled 0.2 µm and 0.22 µm. The substantial overlap demonstrates why a 0.22 µm filter is considered equivalent for methods specifying 0.2 µm nominal pore size.



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