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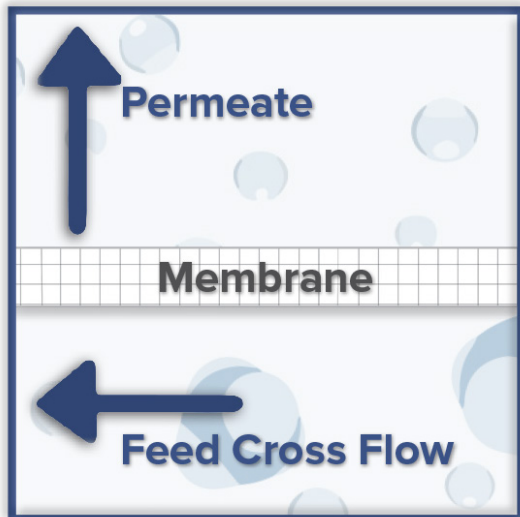
膜技术要点:

TECH TIPS: CROSS FLOW VELOCITY (CFV) 错流速度

Q: What is Cross Flow Velocity? 什么是错流速度

A: Cross flow velocity (CFV) is the linear velocity of the flow tangential to the membrane surface and is reported in [m/sec] or [ft/sec]. CFV affects fouling rate and formation of concentration polarization at membrane surface and is calculated by dividing the volumetric flow rate [lpm or gpm] in the flow channel by the cross sectional area [m² or ft²] of the flow channel.

答: 错流速度 (CFV) 是与膜表面相切的流动的线速度, 以[m / sec]或[ft / sec]报告。CFV影响膜表面的结垢速率和浓差极化的形成, 并且通过将流通道中的体积流量[lpm或gpm]除以流通道的横截面积[m²或ft²]来计算。



Q: How is CFV calculated in Sterlitech's bench-scale test cells?

问: Sterlitech的台式测试单元如何计算CFV?

A: Example: Calculate CFV in the CF042 cell

- **Flow channel cross sectional area:** Channel depth x Channel width* = 0.23 x 3.92 cm
- **Flow rate:** 1 l/min = 1/60000 m³/s
- **CVF** = (1/60000 m³/s) / (0.0023 x 0.0392 m) = 0.18 m/s

*Contact us for more information about channel width in CF016 and Sepa cell

答: 例如: 计算CF042单元格中的CFV

流动通道横截面积: 通道深度x通道宽度* = 0.23x3.92厘米

流量: 1 l / min = 1/60000 m³ / s

CVF = (1/60000立方米/秒) / (0.0023x0.0392米) = 0.18米/秒

*有关CF016和Sepa单元的通道宽度的更多信息, 请联系我们

Q: How is CFV calculated when shims or feed spacers are inserted in the flow channel?

A: Adding shims to the flow channel reduces the depth of the channel. E.g. if the channel depth is 0.23 cm, inserting a shim with a thickness of 0.05 cm reduces the flow channel depth to 0.23 - (0.05) = 0.18 cm. CFV

is then calculated by dividing the volumetric flow rate in the flow channel by the reduced cross sectional area of the channel. Adding feed spacers to the flow channel further reduces the channel cross sectional area. Effective cross sectional area depends on the spacer thickness and spacer's percentage of open area. You can find commercially available Polypropylene and PTFE feed spacers with a wide range of thickness and percentage of open area on our website for Sepa CF, CF042, and CF016 test cells. Please contact Sterlitech at sales@sterlitech.com for more information about calculating CFV or if you are interested in learning more about the shims and feed spacers Sterlitech offers at the moment.

问：在流道中插入垫片或进料垫片时，CFV如何计算？

答：在流动通道中添加垫片会减少通道的深度。例如。如果通道深度为0.23厘米，则插入厚度为0.05厘米的垫片将流道深度减小到 $0.23 - (0.05) = 0.18$ 厘米。然后将流动通道中的体积流量除以通道的减小的横截面积来计算CFV。将进料间隔物添加到流动通道进一步减小了通道横截面积。有效的横截面积取决于垫片厚度和垫片的开放面积百分比。您可以在我们的网站上找到适用于Sepa CF，CF042和CF016测试膜池的聚丙烯和聚四氟乙烯进料垫片，其厚度和开放面积的百分比范围很宽。请联系我们获取更多关于计算CFV的信息，或者如果您有兴趣了解Sterlitech目前提供的垫片和进料垫片的更多信息。