PROCESS INTENSIFICATION IN DOWNSTREAM TFF PURIFICATION USING SEPRAPOR® ULTRAFILTRATION (UF) HOLLOW FIBER FILTERS

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Key Words: ultrafiltration, hollow fibers, SepraPor®, buffer exchange, process intensification

Ultrafiltration (UF) membranes are commonly implemented in downstream bioprocessing steps involving purification, concentration, or buffer exchange of small product species, such as DNA plasmid or proteins. SepraPor® UF hollow fiber membranes are the most extensively well-characterized membrane available for bioprocessing, due to the use of a minimum of three molecular weight (Mw) markers to determine the pore size, i.e. the molecular weight cut-off (MWCO). The rigorous characterization method increases lot-to-lot membrane performance consistency, and most importantly process repeatability. In addition, SepraPor® UF hollow fiber membranes can be used effectively for process intensification. We demonstrate here that carrying out a plasmid DNA purification UF/DF step using SepraPor® can accelerate concentration and buffer exchange. In comparison to cassettes, we observe higher flux values throughout the process, greater flux recovery during buffer exchange, and effective re-use of the filter membrane with minimal performance loss. This delivers the benefits of faster filtration steps, fewer diafiltration volumes (DV) and high product recoveries >98.5%.