

Application of the Cadence™ Acoustic Separator for Clarification and Perfusion in Bioprocessing

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Key to the successful manufacture of biologics is the separation of cells and debris from secreted product following cell culture. Acoustic technology has been developed and applied resulting in the Cadence Acoustic Separator, such that it is now capable of being used as a viable alternative to centrifugation and primary depth filtration. Significant advantages of applying this technology can be realized in a number of operating situations: high cell density applications, high WFI and buffer costs, restrictions on facility footprint and where alternative technologies result in low yield. The outcome of cost modelling, bench-scale and process-scale data will be shown to illustrate the potential benefits of using acoustic technology over current technologies.

Acoustic technology can also be applied to facilitate perfusion culture by creating a wall of acoustic interference patterns that are largely impenetrable by cells yet allowing the return of cells to the bioreactor without any detrimental effects. The non-fouling nature of perfusion acoustic devices lends itself well to continuous processing by avoiding the need for substitution of fouled devices as might be the case for TFF and hollow fibres. Data will be shown to describe the application of acoustic perfusion devices and their merits over currently installed technologies.