

S1.1.4 USE OF COMPUTATIONAL FLUID DYNAMICS (CFD) SOFTWARE TO OPTIMIZE KNITTED WIRE MESH DROPLET REMOVAL

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A knitted wire mesh pad separator in liquid-liquid-separation, as well as in gas-liquid-separation, needs to be operated with a specific fluid velocity to achieve an optimum efficiency for droplet separation.

For example, low gas flow velocity through an aerosol separating mesh pad in a gaseous phase decreases the separation efficiency, while exceeding the recommended velocity range can cause droplet entrainment on the clean gas side and could cause flooding of the system.

To identify local hot spots of extreme velocity (high and low extremes), a flow simulation in Solidworks is used. This Computational Fluid Dynamics (CFD) simulation tool provides visual and quantitative results, and is the perfect tool for individual fluid flow analysis.

Specific process specifications can be considered and a calculation of the flow situation is available to customers. Complex flow calculation leads to optimized construction geometries. This Computational Fluid Dynamics analysis leads to cost reductions in procurement and improved operations efficiencies.

This paper discusses the analysis process, inputs needed, and quantification of results.