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Statistical data generated through CFD to aid in the scale-up of shear sensitive processes. IRFAN KHAN, SHANKHADEEP DAS, MIKE CLOETER, PAUL GILLIS, MICHAEL POINDEXTER, The Dow Chemical Company — A number of industrial processes are considered shear-sensitive, where the product quality depends on achieving the right balance between mixing energy input and the resulting strain rate distribution in the process. Examples of such industrial processes are crystallization, flocculation and suspension polymerization. Scale-up of such processes are prone to a number of challenges including the optimization of mixing and shear rate distribution in the process. Computational Fluid Dynamics (CFD) can be a valuable tool to aid in the process scale-up; however for modeling purpose, the process will often need to be simplified appropriately to reduce the computational complexity. Commercial CFD tools with appropriate Lagrangian particle tracking models can be used to gather statistical data such as maximum strain rate distribution and maximum number of passes through a specific strain rate. This presentation will discuss such statistical tools and their application to a model scale-up problem

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