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**Discrete Population Balance Multiphase Mixture Modeling of Fragmentation in Fully Developed Turbulent Duct Flow** ADITYA JAYANTHI, JOHN PEDDIESON, Tennessee Technological University — A popular way to model particulate fragmentation is to divide the particle cloud into a finite number of size classes and allow transfer from larger to smaller size classes to simulate fragmentation. To use this approach effectively it is necessary to know the minimum number of size classes required for accurate predictions (size class convergence). In the present paper this question is addressed in the context of fragmentation in a fully developed turbulent duct flow using a multiphase mixture model of the particle cloud. Numerical solutions are obtained for a simple turbulence model and size class convergence is tested using two global measures of particle size distribution for several idealized fragmentation models.

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