

Abstract Submitted
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Reevaluating the jet breakup regime diagram BEN TRETTEL, University of Texas at Austin — Identifying the regime of a liquid jet is necessary to determine the physical mechanisms causing breakup and consequently how to model the jet. Existing regime diagrams are based on a small amount of data classified by superficial visual characteristics, making these diagrams too inaccurate to reliably determine the correct regime. A more accurate regime diagram is developed using a large compilation of breakup length data combined with theory where the data is sparse. Improvements in the regime diagram include a new regime, the addition of the nozzle critical Reynolds number and the turbulence intensity as variables, and the recognition that how the regimes change with increasing velocity (i.e., Rayleigh to first wind-induced to second wind-induced to atomization) is not universal.

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