

Abstract Submitted
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Flash atomization in splash plate nozzles REZA KARAMI, NASSER ASHGRIZ, Department of Mechanical and Industrial Engineering, University of Toronto, HONGHI TRAN, Chemical Engineering Department, University of Toronto — An experimental study was conducted to determine the effect of mass flow rate and temperature on characteristics of liquid sheets formed by splash plate nozzles. Two different splash plate nozzle sizes were used at five flow rates and 6 temperatures. The splash plate angle of the nozzles was 55 degrees and the working liquid was water. Direct visualization via photography was performed to investigate the sheet breakup process. Reynolds number and Jacob number were used to characterize the sheet formation and breakup regime. Four different sheet instabilities and breakup mechanisms can occur depending on the temperature and mass flow rate of the nozzle. The results were compared to the results obtained from other experiments using different liquid and nozzle size. The characterization can help to predict the sheet breakup mechanism at any condition.

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