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Features of the breakage drops low boiling dispersed phase in gradient flow near the heated surface

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Abstract

© 2015 Alexander K. Rozentsvaig and Cheslav S. Strashinskii. The mechanisms of the formation of vapor bubbles of a critical size in deformable droplets of the dispersed phase in liquid emulsion been studied. The model is proposed breakup of the droplets in gradient flow of the emulsion near the surface heating under the combined action of viscous shear stresses and thermal overload. Was the dependence of the heat flux density at boiling of dispersed drops of low-temperature liquid phase in a gradient flow of the emulsion near hard surface. Comparison with the data of experimental studies shows the validity of the proposed model concepts that are different from the usual boiling of homogeneous fluids at surface heating.

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Keywords

Breakage mechanisms, Gradient flow, Heat transfer, Initiation of nucleation, Liquid emulsion, Low-boiling droplets, Vapor bubbles