

# Microwave induced composite droplet puffing/microexplosion

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The paper presents experimental and theoretical results of microwave induced composite droplet puffing/microexplosion characteristics. The experimental studies were carried out in a microwave waveguide. Theoretical estimates were made using the Comsol Multiphysics software package. Water, kerosene, and rapeseed oil were used as the liquids under study. The results were obtained by varying microwave heating power, ratio and mutual arrangement of the components of the composite droplets, and the type of components. The mathematical processing of the experimental results and numerical modeling was performed in order to obtain approximation expressions for the established dependencies of the puffing/microexplosion characteristics of immiscible liquid droplets under microwave heating. A satisfactory correlation between the experimental and modeling results was obtained.

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