

Dispersion of liquid drop under effect of air shock wave with intensity from 0.2 atm up to 42 atm

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ABSTRACT

The authors present results of experiments with study of dispersion of drops of liquid tributylphosphate having diameter \varnothing 2 mm under effect of air shock wave with intensity from 0.2 atm up to 42 atm. Experiments were performed with use of an air shock tube. Shock wave was created by explosion of mixture $C_2H_2 + 2.5 O_2$, compressed air or compressed helium.

Registration of the process was held with use of high-velocity macro- and microfilming (the schlieren method, ordinary filming).

Macroregistration allowed to register integral picture of the process of drop dispersion, to determine time of evaporation of drops. Microregistration allowed to resolve fragments of liquid with size of $\geq 2 \mu m$ and to obtain distribution of spectrum of drop fragments, necessary for calibration of analytical models.