

THE LOCAL HEATING OF LIQUID DUE  
TO CAVITATION AND CHANGE OF ITS  
ELECTRICAL PROPERTIES

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S u m m a r y

The peculiarities of the sonocapillary effect in liquid with great viscosity (the silica oil) are investigated. In the previous articles [6, 7], it was shown that the real cavitation processes in such a liquid cannot be stimulated under the capillary cut, and the stationary flow of microbubbles to the capillary channel is forming. Two facts, the translation of microbubbles and the specific resistance fall by more than three orders due to the ultrasonic effect, cause the voltage difference near the capillary cut. This effect has been interpreted as the Dorn's effect in the ultrasonic field. In the present article, the reasons for the ultrasonic dependence of the silica oil specific resistance are analyzed. The temperature distribution in the capillary channel has been experimentally investigated. The distribution of temperature along the capillary axis has two characteristic peaks. The first peak reaches 60 – 80 °C and occurs just below the surface of the pulsing cavity. The second peak locates in the capillary rather far from its open end and liquid. It has been shown that the specific resistance fall by more than three orders cannot be explained only by the local thermal effect. The possibility of the direct influence of ultrasound on the molecular structure of liquid has been discussed.