

# Maximum spreading diameter of a water droplet after impact on a hot surface beyond Leidenfrost temperature

## Abstract

The impact of liquid droplets on heated surfaces are relevance across a range of applications. The maximum spreading diameter of water droplet during impact on hot surface was experimentally studied. The surface was made of aluminium. The diameter and height of the aluminium block was 70.0 mm and 30.0 mm, respectively. During experiment, the test surface was heated beyond Leidenfrost temperature. A high-speed video camera was used to capture the droplet images from the first impact until the droplet reached maximum spreading condition. The frame rate was set to be 2,000 fps. Distilled water was used as the test liquid. The impact height was set to be about 65.0 mm. From the high-speed images analysis, the droplet diameter was found to be approximately 4.5 mm. The measured droplet maximum spreading diameters were found to have a good agreement with theoretical calculation.

## Keywords

Droplet; High Speed Camera; Hot Surface; Leidenfrost; Maximum Spreading