Documents

Juhar, M.Z.F.[a] , Mohamad, M.S.[a] , Illias, S.[a] , Amin, N.A.M.[a] , Hussain, S.[a] , Ani, M.H.[b]

Maximum spreading diameter of a water droplet after impact on a hot surface beyond Leidenfrost temperature
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[a] Faculty of Mechanical Engineering and Technology, Universiti Malaysia Perlis, Main Campus Pauh Putra,Arau, Perlis, 02600, Malaysia
[b] Department of Manufacturing and Materials, Kulliyyah of Engineering, International Islamic University Malaysia, PO Box, Kuala Lumpur, 50728, Malaysia

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.

Author Keywords
droplet; high speed camera; hot surface; Leidenfrost; Maximum spreading

Index Keywords
Aluminum, Drops, Video cameras; Aluminum block, Heated surfaces, High-speed cameras, Hot surface, Leidenfrost, Leidenfrost temperature, Liquid droplets, Maximum spreading, Spreading diameters, Water droplets; High speed cameras

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Correspondence Address
Mohamad M.S.; Faculty of Mechanical Engineering and Technology, Main Campus Pauh Putra,Arau, Malaysia; email: sofwanmohamad@unimap.edu.my

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