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## Experimental investigation of critical heat flux during impact of a droplet onto hot horizontal surface (Article) (Open Access)

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### Abstract

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The purpose of this research is to investigate the Critical Heat Flux (CHF) and its relationship with thermal inertia during impact of a droplet on hot horizontal surface. In the study, three (3) different types of material were used which were Aluminum, Brass and Stainless Steel (304). The materials dimension were 50.0 mm in diameter and 30.0 mm in height. The materials were polished until they became a mirror polished surface. Ethanol was used as the test liquid. The droplet diameter was approximately 3.528 mm. The impact height was approximately 65.0 mm corresponding to impact velocity of 1.129 m/s. The evaporation lifetime was measured in seconds by using a digital stopwatch. As a result, it was observed that the CHF occurred at the surface temperatures of 105, 120 and 160 °C for aluminum, brass and stainless steel, respectively. It was also observed that all CHF data showed an evaporation lifetime below 1 sec order which is similar with other literatures. © 2020, World Academy of Research in Science and Engineering. All rights reserved.

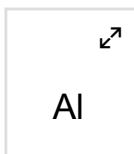
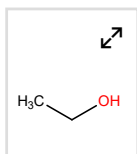
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Critical Heat Flux Droplet impact Evaporation lifetime Horizontal surface

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