

عنوان مقاله:

Experimental Investigation of the Effect of Nanofluid on Quenching of a Hot Slab

محل انتشار:

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خلاصه مقاله:

The objective of this study is to investigate the effect of nanofluid on quenching a hot slab in water-based silica nanofluid and water at saturated conditions. The experiments are carried out with a Copper slab with initial temperature 600°C that was suddenly immersed into the nanofluid or water. The temperature history in the center of slab was accurately recorded. Heat transfer rate from surface to fluid was calculated by assuming lumped system. Lumped heat-capacity method was applied (so that $Bi < 0.1$). The effect of nanofluid on quenching process and critical heat flux (CHF) were evaluated. Boiling curves and quenching curves of the specimen in nanofluid were compared with deionized water. The results show that the quenching behavior in nanofluids is nearly identical to that of pure water but probably depends on Surface characterization during quenching tests. The obtained results during quenching process indicated that CHF in nanofluids was less than deionized water and quenching time increases.

کلمات کلیدی:

quenching , nanofluid , film boiling , CHF

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