

The Effect of Type of Nanoparticles on the Quenching Process

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Abstract : In this study, the experiments were carried out to determine the best coolant for the quenching process among water-based silica, alumina, titania and copper oxide nanofluids (0.1 vol%). A sphere made up off brass material was used in the experiments. After the spherical test specimen was heated at high temperatures, it was suddenly plunged into the nanofluid suspensions. All experiments were performed at saturated conditions and under atmospheric pressure. Using the temperature-time data of the specimen, the cooling curves were obtained. The experimental results showed that the cooling performance of test specimen depended on the type of nanofluids. The silica nanoparticles enhanced the performance of boiling heat transfer and it is the best coolant for the quenching among other nanoparticles.

Keywords : quenching, nanofluid, pool boiling, heat transfer

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