ABSTRACT

Zirconium is the main material used in the manufacture of these nanoparticles because it has heat resistant properties and corrosive properties. In this study, ZrO2 nanoparticles is obtained by extraction from zircon sand into ZrOCl2.8H2O, then synthesized by using Sol-Gel method into ZrO2 nanoparticles. Subsequently, it is made into nanofluids water-ZrO2 and measured the pH of the mixture. Nanoparticles which is made will be analyzed its crystal structure by X-Ray Diffraction (XRD) and the particle diameter is measured by Surface Area Meter (SAM)

In this study, nanofluids will be applied to radiator as a coolant radiator. The aim is nanofluids become a good heat sink so as to lower the high temperature in car radiator.

From the result of process of sol-gel derived ZrO_2 nanoparticles with a size of 14 nm by using Surface Area Meter. The results shows that the concentration is directly proportional to the measured great of Δt, that is the highest concentration of 0.5 gram of loss results known around 4,5^{o}C with coefficient of performance radiator around 266.07.

Keyword: *Nanoparticle, nanofluids, zircronium, sol-gel.*