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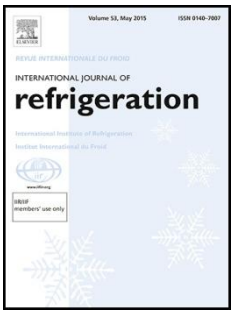

Title: Viscosity, Density, And Thermal Conductivity Of Aluminum Oxide And Zinc Oxide Nanolubricants

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VISCOSITY, DENSITY, AND THERMAL CONDUCTIVITY OF ALUMINUM OXIDE AND ZINC OXIDE NANOLUBRICANTS

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Highlights

>Viscosity, density, and thermal conductivity measurements of nanolubricant for water chillers were presented.

>Models capture the effects of nanoparticle size, nanoparticle and surfactant mass fraction, and temperature.

>Viscosity model based on using nanoparticle size dependent pseudo surfactant and pseudo nanoparticle viscosities.

>Maxwell equation modeled spherical nanoparticles conductivity successfully, while sphericity correction was used for non-spherical nanoparticles.

ABSTRACT

This paper presents liquid kinematic viscosity, density, and thermal conductivity measurements of eleven different synthetic polyolester-based nanoparticle nanolubricants (dispersions) at atmospheric pressure over the temperature range 288 K to 318 K. Aluminum oxide (Al_2O_3) and

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