

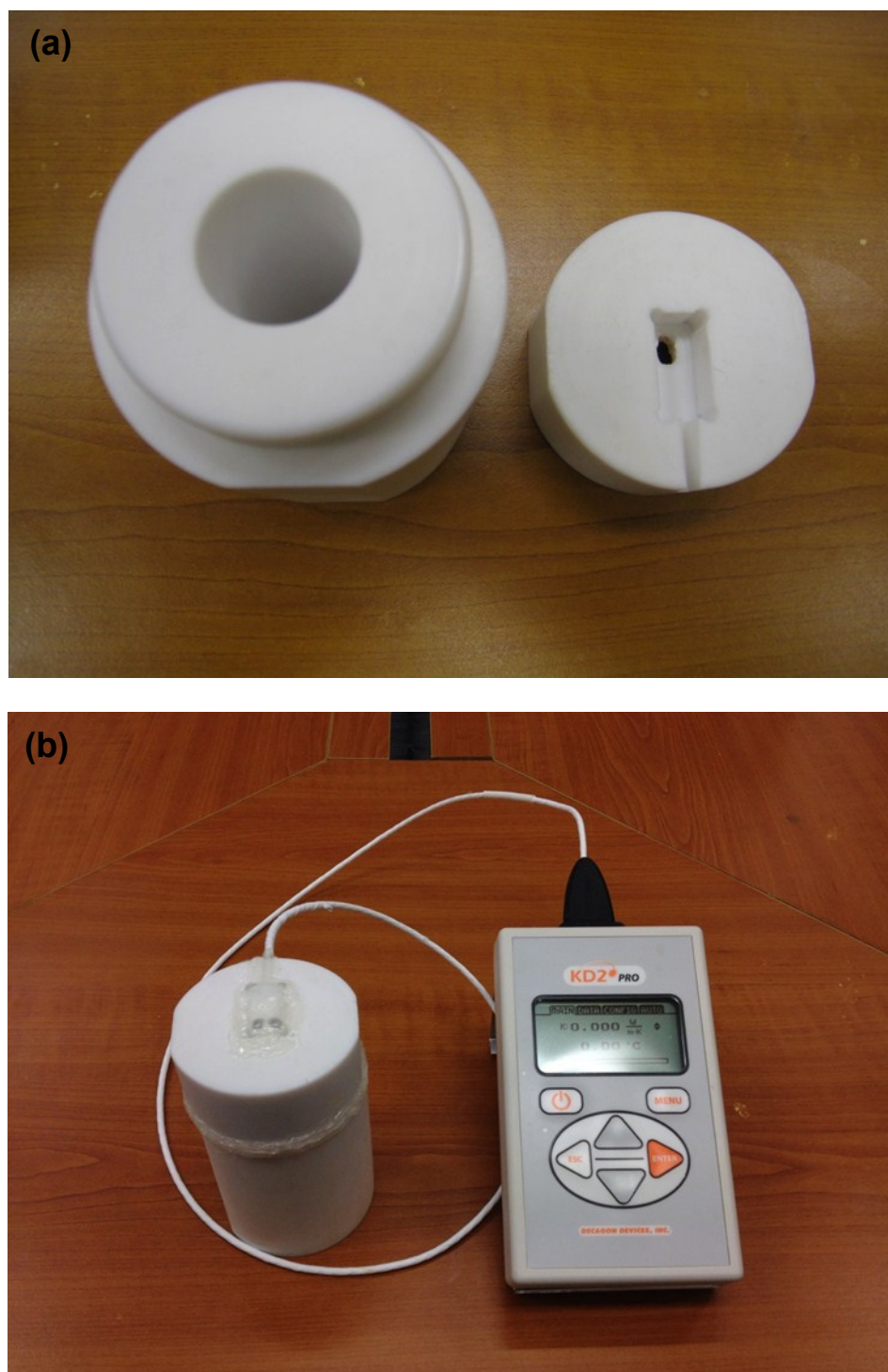


Figure S1. Photographs of (a) home-made thermal insulation cell and (b) experimental set-up for thermal conductivity measurement.

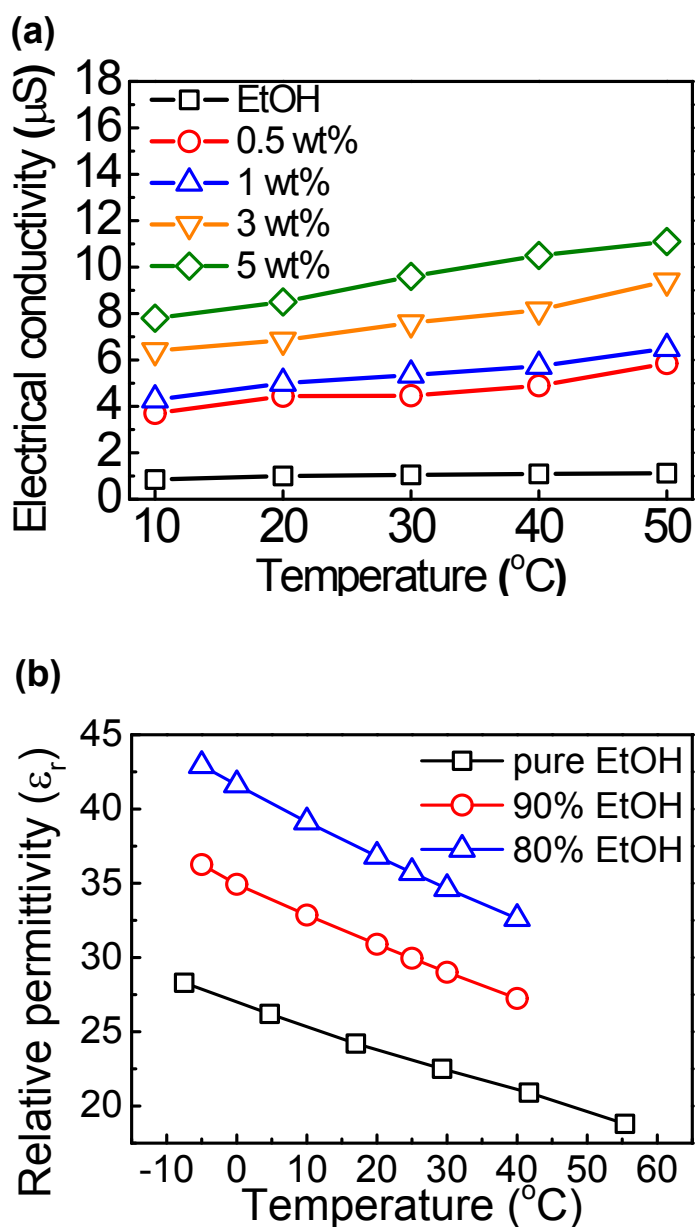


Figure S2. (a) Electrical conductivity of ethanol and 0.5, 1, 3 and 5 wt% of  $\text{TiO}_2$ -ethanol nanofluid vs temperature. (b) Relative permittivity of pure ethanol, 90% ethanol and 80% ethanol vs temperature. (Data reference from Jeffries. Wyman Journal of the American Chemistry Society, 1931, 53, 3292–3300)