9.7 cm

THE USE OF AC SUSCEPTIBILITY MEASUREMENTS IN THE INVESTIGATION OF AGGREGATION IN MAGNETIC FLUIDS

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Measurements of the complex, frequency dependent susceptibility, $\chi(\omega) = 3D\chi''(\omega) - i\chi''(\omega)$, for a number of magnetic fluids over the frequency range 10Hz to 1MHz are presented. Plots of the susceptibility components against log (f Hz) are shown to have approximate Debye-type profiles with the presence of Brownian relaxation being indicated by the frequency, f_{max}, of the maximum if the $\chi''(\omega)$ profiles. Corresponding calculations of particle hydrodynamic radius indicates the presence of aggregation. Fitting techniques are used to obtain a measure of the particle size distribution in the samples.

13.4 cm

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