

# THE DC AND AC INSULATING PROPERTIES OF MAGNETIC FLUIDS BASED ON TRANSFORMER OIL.

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Insulating and thermal properties of insulating media limited lowest sizes and largest currents in transformers. Large current densities may leads in sites with high strength field to form bridge between sites with large potential difference. The bridge consists with clusters of particles of fluid. Magnetic fluids (MFs) based on transformer oils with fine magnetite particles of nanometer scale improve thermal behaviors and in some cases insulating behaviors of transformer oils too. The improvement of the insulating properties is connected with sufficiently diluted MFs with low particle volume concentration bellow 1 what is very surprised phenomenon. In our previous work we have studied DC insulating properties and we found that critical concentration for crossover from worse to better insulating properties has the value of volume concentration as to be 0.25%. In this contribution we will present the results concerning to AC insulating properties in magnetic fluids based on transformer oil ITO 100. The results confirmed improvement of AC insulating properties our magnetic fluid in comparison with pure transformer oil too.

9.7 cm

13.4 cm

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