

Dielectric Properties of 0-3 Barium Zirconate Titanate Portland Cement Composites at 40% BZT Content with Carbon Addition

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The 0-3 barium zirconate titanate portland cement composites with carbon addition which are expected to find application in civil engineering. The barium zirconate titanate, portland cement and carbon powder were fabricated using 425 μm barium zirconate titanate particle size at 40% by volume and varying carbon addition at 0.3-2% by volume. The composites were then cured at 60 °C for 3 days before measurements. The dielectric constant and the dielectric loss at room temperature and various frequencies of the barium zirconate titanate portland cement composites with different carbon contents were investigated. The results show that the dielectric constant of composites was found to increase as carbon content increases, and that the dielectric constant was increase to the value of ≈ 310 for a carbon content of 2%.

Author: Dr POTONG, Ruamporn (Division of Physics, Faculty of Science and Technology, Rajamangala University of Technology Thanyaburi, Pathum Thani, THAILAND 12110)

Co-authors: Dr CHAIPANICH, Arnon (Department of Physics and Materials Science, Faculty of Science, Chiang Mai University, Chiang Mai, THAILAND 50200); Dr RATTIYAKORN, Rianyai (Department of Physics and Materials Science, Faculty of Science, Chiang Mai University, Chiang Mai, THAILAND 50200)

Presenter: Dr POTONG, Ruamporn (Division of Physics, Faculty of Science and Technology, Rajamangala University of Technology Thanyaburi, Pathum Thani, THAILAND 12110)

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