

## Microwave Dielectric Relaxation Study of Diethanolamine with Triethanolamine from 10 MHz-20 GHz

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**Abstract :** The microwave dielectric relaxation study of diethanolamine with triethanolamine binary mixture have been determined over the frequency range of 10 MHz to 20 GHz, at various temperatures using time domain reflectometry (TDR) method for 11 concentrations of the system. The present work reveals molecular interaction between same multi-functional groups [–OH and –NH<sub>2</sub>] of the alkanolamines (diethanolamine and triethanolamine) using different models such as Debye model, Excess model, and Kirkwood model. The dielectric parameters viz. static dielectric constant ( $\epsilon_0$ ) and relaxation time ( $\tau$ ) have been obtained with Debye equation characterized by a single relaxation time without relaxation time distribution by the least squares fit method.

**Keywords :** diethanolamine, excess properties, kirkwood properties, time domain reflectometry, triethanolamine

**Conference Title :** ICMTT 2016 : International Conference on Microwave and Terahertz Technology

**Conference Location :** New York, United States

**Conference Dates :** June 06-07, 2016