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Microwave dielectric polarization study of polar liquids at 298 K

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Present paper deals with study of microwave dielectric properties like dielectric constant, relaxation time, viscosity, density and refractive index for the binary mixtures of Aniline and 2- Butoxy ethanol (2-BE) over the entire concentration range measured at 298K. The experimental data is further used to determine derived properties viz. molar refraction, molar polarization & Bruggman factor and the excess properties viz. excess static dielectric constant, excess inverse relaxation time, excess molar polarization, excess molar volume, excess viscosity. The values of excess properties further fitted with Redlich–Kister (R-K Fit) equation. The resulting excess parameters are used to indicate the presence of weak intermolecular interactions and strength of intermolecular interactions between the molecules in the binary mixtures. Excess parameters indicate structure breaking factor in the mixture predominates with increase in concentration of aniline.

REFERENCES

1. Aruna P. Maharolkar, A. G. Murugkar and P. W. Khirade, *AIP Conference Proceedings* 1728, 0200381–0200384, (2016)
[Google Scholar](#)
2. Ali, A., Nain, A.K., Sharma, V.K., Ahmad, *Indian J. Phys. B* 75, 519–525, (2001).
[Google Scholar](#)
3. A. G. Murugkar, Aruna P. Maharolkar, *Rasayan Journal Chemistry*, 7 (1), 39–43, (2014).
[Google Scholar](#)
4. Aruna P Maharolkar, A. G. Murugkar, P. W. Khirade, S. C. *Russian Journal of Physical Chemistry A* 91 (9) 1710–1716, (2017).
<https://doi.org/10.1134/S0036024417090060>

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[Google Scholar](#) [Crossref](#)

5. A. G. Murugkar, A. P. Maharolkar, *IJACS Indian Journal of Advances in Chemical Science* 2, 249–252, (2014).

[Google Scholar](#)

6. P. Jeevanandham, S. Kumar, P. Periyasamy, and A. C. Kumbharkhane, *Advances in Physical Chemistry* 2014, 1–9 (2014)

<https://doi.org/10.1155/2014/659531>

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