

International Journal of Thermodynamics

RESEARCH ARTICLE

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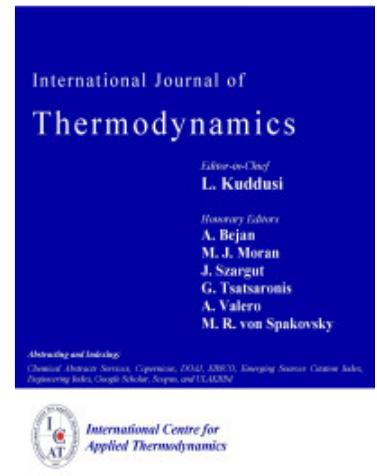
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Vol. 25 No. 3
September 2022ISSN: 1308-0724
pISSN: 2146-1501
https://dergipark.org.tr/ijot/issue/72396/1017174

Static Dielectric Constants, Densities, Refractive Indices and Related Properties of Binary Mixtures at Various Temperatures Under Atmospheric Pressure

Year 2022, Volume: 25 Issue: 3, 1 – 10, 01.09.2022

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<https://doi.org/10.5541/ijot.1017174>

Abstract

Experimental dielectric constants at (293.15, 298.15, 303.15) K, densities and refractive indices at 293.15 K are reported for water- ethanol and water- n-butanol binary mixture systems over the entire volume fraction range and atmospheric pressure. From the experimental dielectric data, the excess dielectric constant, effective Kirkwood correlation factor, Bruggeman factor and from density and refractive index data various parameters and their excess properties like excess density, excess refractive index, excess molar polarization, and excess molar volume were estimated and reported in the study. The static dielectric constant of the studied binary mixtures decreases with increase in temperature and volume fraction of the solutes. The density values are decreasing and refractive indices are increasing with increasing volume fraction of ethanol and n-butanol in water. Excess molar volumes values of ethanol and n-butanol are negative over the entire volume fraction range shows the presence of intermolecular interaction and hydrogen bonding in both the binary mixtures.

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Keywords

[Static dielectric constant](#), [Density](#), [Refractive index](#), [excess properties](#), [polar binary mixtures](#)

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Details

Primary Language	English
Subjects	Organic Chemistry
Journal Section	Research Articles
Authors	Vaijanath Navarkhele* Dr. Babasaheb Ambedkar marathwada University India
	Aishwarya Navarkhele It is not affiliated with an institution India
Publication Date	September 1, 2022
Published in Issue	Year 2022 Volume: 25 Issue: 3

Cite

APA	Navarkhele, V., & Navarkhele, A. (2022). Static Dielectric Constants, Densities, Refractive Indices and Related Properties of Binary Mixtures at Various Temperatures Under Atmospheric Pressure. <i>International Journal of Thermodynamics</i> , 25(3), 1-10. https://doi.org/10.5541/ijot.1017174 
AMA	Navarkhele V, Navarkhele A. Static Dielectric Constants, Densities, Refractive Indices and Related Properties of Binary Mixtures at Various Temperatures Under Atmospheric Pressure. <i>International Journal of Thermodynamics</i> . September 2022;25(3):1-10. doi:10.5541/ijot.1017174 
Chicago	Navarkhele, Vaijanath, and Aishwarya Navarkhele. "Static Dielectric Constants, Densities, Refractive Indices and Related Properties of Binary Mixtures at Various Temperatures Under Atmospheric Pressure". <i>International Journal of Thermodynamics</i> 25, no. 3 (September 2022): 1-10. https://doi.org/10.5541/ijot.1017174 . 
EndNote	Navarkhele V, Navarkhele A (September 1, 2022) Static Dielectric Constants, Densities, Refractive Indices and Related Properties of Binary Mixtures at Various Temperatures Under Atmospheric Pressure. <i>International Journal of Thermodynamics</i> 25 3 1-10. 
IEEE	V. Navarkhele and A. Navarkhele, "Static Dielectric Constants, Densities, Refractive Indices and Related Properties of Binary Mixtures at Various Temperatures Under Atmospheric Pressure", <i>International Journal of Thermodynamics</i> , vol. 25, no. 3, pp. 1-10, 2022, doi: 10.5541/ijot.1017174. 
ISNAD	Navarkhele, Vaijanath - Navarkhele, Aishwarya. "Static Dielectric Constants, Densities, Refractive Indices and Related Properties of Binary Mixtures at Various Temperatures Under Atmospheric Pressure". <i>International Journal of Thermodynamics</i> 25/3 (September 2022), 1-10. https://doi.org/10.5541/ijot.1017174 . 
JAMA	Navarkhele V, Navarkhele A. Static Dielectric Constants, Densities, Refractive Indices and Related Properties of Binary Mixtures at Various Temperatures Under Atmospheric Pressure. <i>International Journal of Thermodynamics</i> . 2022;25:1-10. 
MLA	Navarkhele, Vaijanath and Aishwarya Navarkhele. "Static Dielectric Constants, Densities, Refractive Indices and Related Properties of Binary Mixtures at Various Temperatures Under Atmospheric Pressure". <i>International Journal of Thermodynamics</i> , vol. 25, no. 3, 2022, pp. 1-10, doi:10.5541/ijot.1017174. 
Vancouver	Navarkhele V, Navarkhele A. Static Dielectric Constants, Densities, Refractive Indices and Related Properties of Binary Mixtures at Various Temperatures Under Atmospheric Pressure. <i>International Journal of Thermodynamics</i> . 2022;25(3):1-10. 