

Consistency Test for Density and Refractive Index Data

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The controversy concerning the correct manner of defining the deviation from ideal behaviour of refractometric properties was addressed in a previous work and is revisited here to fix some particulars. Different correlations between refractometric and volumetric properties are analyzed together with the conditions for occurrence. The broad validity of the rule that the deviation of refractive index from ideality is negatively correlated with excess molar volume allows it to be used as a quick and handy check on the consistency of density and refractive index data. Of course, this test can just be applied to systems fulfilling a priori the needed condition for a good correlation between both properties, namely, the fact that the excess molar refraction can be neglected against the excess molar volume when the comparison is made in terms of relative deviations from ideality. The proposed consistency test has shown to be useful in detecting erroneous data in the literature.