

STATISTICAL DESCRIPTION
OF EXCESS PROPERTIES OF MANY-PARTICLE
BINARY SYSTEMS

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S u m m a r y

Excess properties of almost ideal many-particle binary mixtures have been studied theoretically in the framework of the Kirkwood–Buff approach based on the calculation of statistical correlation integrals. With the help of the Percus–Yevick approximation for distribution functions and the superposition approximation for partial structure factors, an expression describing the compressibility of binary system in terms of the parameters of monodisperse phases is derived. Using generalized functions, analytical expressions for correlation integrals in terms of component packing fractions are obtained. The theoretical results for the compressibility of a system are compared with the experimental data on the sound velocity. In this case, we introduce a correction function, which depends on the packing degree and the composition content and is determined by fitting the experimental data. This allows us to describe the excess properties of binary systems.