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surface excess energy

Defined by:

$$U^{\sigma} = U - U^{\alpha} - U^{\beta} = U - V^{\alpha}\,\frac{U^{\alpha}_{\mathrm{m}}}{V^{\alpha}_{\mathrm{m}}} - V^{\beta}\,\frac{U^{\beta}_{\mathrm{m}}}{V^{\beta}_{\mathrm{m}}}$$

where V^{α} and V^{β} satisfy the condition $V^{\alpha} + V^{\beta} = V$, the total volume of the system. $(\frac{U^{\alpha}_{\mathrm{m}}}{V^{\alpha}_{\mathrm{m}}})$ and $(\frac{U^{\beta}_{\mathrm{m}}}{V^{\beta}_{\mathrm{m}}})$ are the energy densities in the two bulk phases where U^{α}_{m} and U^{β}_{m} are the mean molar energies and V^{α}_{m} and V^{β}_{m} are the mean molar volumes of the two phases.

Source:
PAC, 1972, *31*, 577 *(Manual of Symbols and Terminology for Physicochemical Quantities and Units, Appendix II: Definitions, Terminology and Symbols in Colloid and Surface Chemistry)* on page 599

