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surface excess, n^{σ}

For an interface, the adsorption or surface excess of a given component is defined as the difference between the amount of component actually present in the system, and that which would be present (in a reference system) if the bulk concentration in the adjoining phases were maintained up to a chosen geometrical dividing surface (Gibbs dividing surface). For a solid/liquid interface in which no component of the liquid phase penetrates into the solid, the surface excess (or adsorption) of component *i* is defined as:

$$n_i^{\sigma} = n_i - V^{\mathrm{l}}\, c_i^{\mathrm{l}}$$

where n_i is the total amount of *i* in the system, V^{l} is the volume of an arbitrarily chosen amount of bulk liquid (in the framework of the so-called algebraic method) and c_i^{l} is its bulk concentration in the liquid.
See: Gibbs adsorption

Source:
PAC, 1986, *58*, 967 *(Reporting data on adsorption from solution at the solid/solution interface (Recommendations 1986))* on page 969
Green Book, 2nd ed., p. 63

