doi:10.1351/goldbook.I03313

isosteric enthalpy of adsorption

When the addition of the differential amount of component i $\mathrm{d}n_i^\sigma$ or $\mathrm{d}n_i^\mathrm{s}$ is effected at constant pressure p, the differential molar enthalpy of adsorption, $\Delta_a H_i^\sigma$ or $\Delta_a H_i^\mathrm{s}$ also called the isosteric enthalpy of adsorption (q^st) is defined as:

$$\Delta_a H_i^\sigma = -q^{\mathrm{st},\sigma} = U_i^\sigma - H_i^\mathrm{g}$$

$$\Delta_a H_i^\mathrm{s} = -q^{\mathrm{st},\sigma} = H_i^\sigma - H_i^\mathrm{g}$$

where $H_i^\mathrm{s} = \left(\frac{\partial H^\mathrm{s}}{\partial n_i^\mathrm{s}}\right)_{T,p,m,n_j^\mathrm{s}}$ and H_i^g is the partial molar enthalpy of component i in the gas phase, i.e. $\left(\frac{\partial H^\mathrm{g}}{\partial n_i^\mathrm{g}}\right)_{T,p,n_i^\mathrm{g}}$

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 603

