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Calorimetric data, enthalpies of bulk phases, and surface enthalpies

Enthalpies of drop solution are listed in Table 1, which also gives the surface area and water content of the nanomaterials, as well as the water correction terms and calculated drop solution enthalpies of the H$_2$O-free nanomaterials. Table 2 compares the measured enthalpies of drop solution, oxidation reactions, and formation from elements of bulk samples with previous values; equilibrium boundaries are computed, and several additional observations, consistent with the thermochemistry, regarding hydration and phase transformations are presented. Some geochemical implications of this nanoscale complexity then are explored.

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