Protein stability is of considerable scientific and technical interest. The stability of proteins in solutions has been studied frequently, e.g., by DSC calorimetry. But there are only few studies on the stability of proteins adsorbed on solid surfaces. Here, an experimental study with micro DSC calorimetry on the stability of lysozyme in aqueous solutions (with HEPES buffer and sodium or calcium chloride) and adsorbed from these solutions on silica nano particles is presented. Protein stability in a solution is considered to be mainly a function of the water activity. Protein stability of a protein adsorbed on a surface can be expected to depend strongly on surface properties. The water activity was measured by FTIR spectroscopy with a new method developed previously [1]. The apparatus and method described in [1] was improved in many details yielding higher stability. The experimental accuracy of the measured water activity was tested by measurements of humidity fixed points (saturated salt solutions) and of sodium chloride solutions of varying concentration and found to be better than 0.001 in $a_{w}$. DSC studies of the unfolding of lysozyme have been done for the native solution, the supernatant of the adsorption system and for a mixture of the supernatant and the adsorbed phase. The transition curves of the mixture were regarded as superposition of the curves of the adsorbed protein and that in the supernatant. Thus, the transition curves of the adsorbed protein could be determined analytically from the supernatant and mixture curves. The water activity, but not the kind of salt (sodium or calcium chloride), has a clear influence on the results for the unfolding enthalpy and temperature of the protein in both, the native solution and the supernatant. A stabilizing effect of adsorption on the protein was also observed. The water activity and the change from the monovalent sodium to the bivalent calcium cation has a strong influence on the adsorption and the stability of the adsorbed protein.