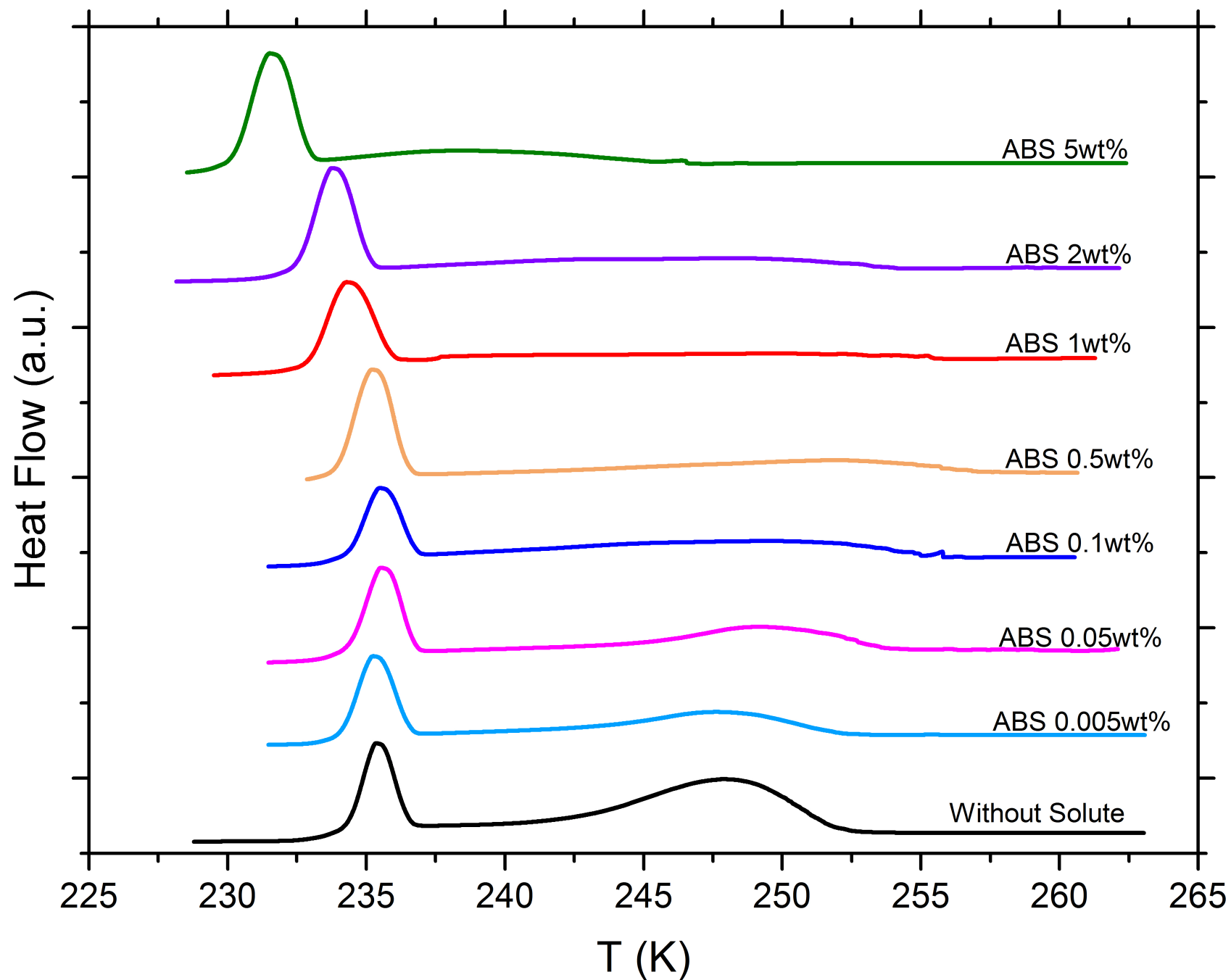
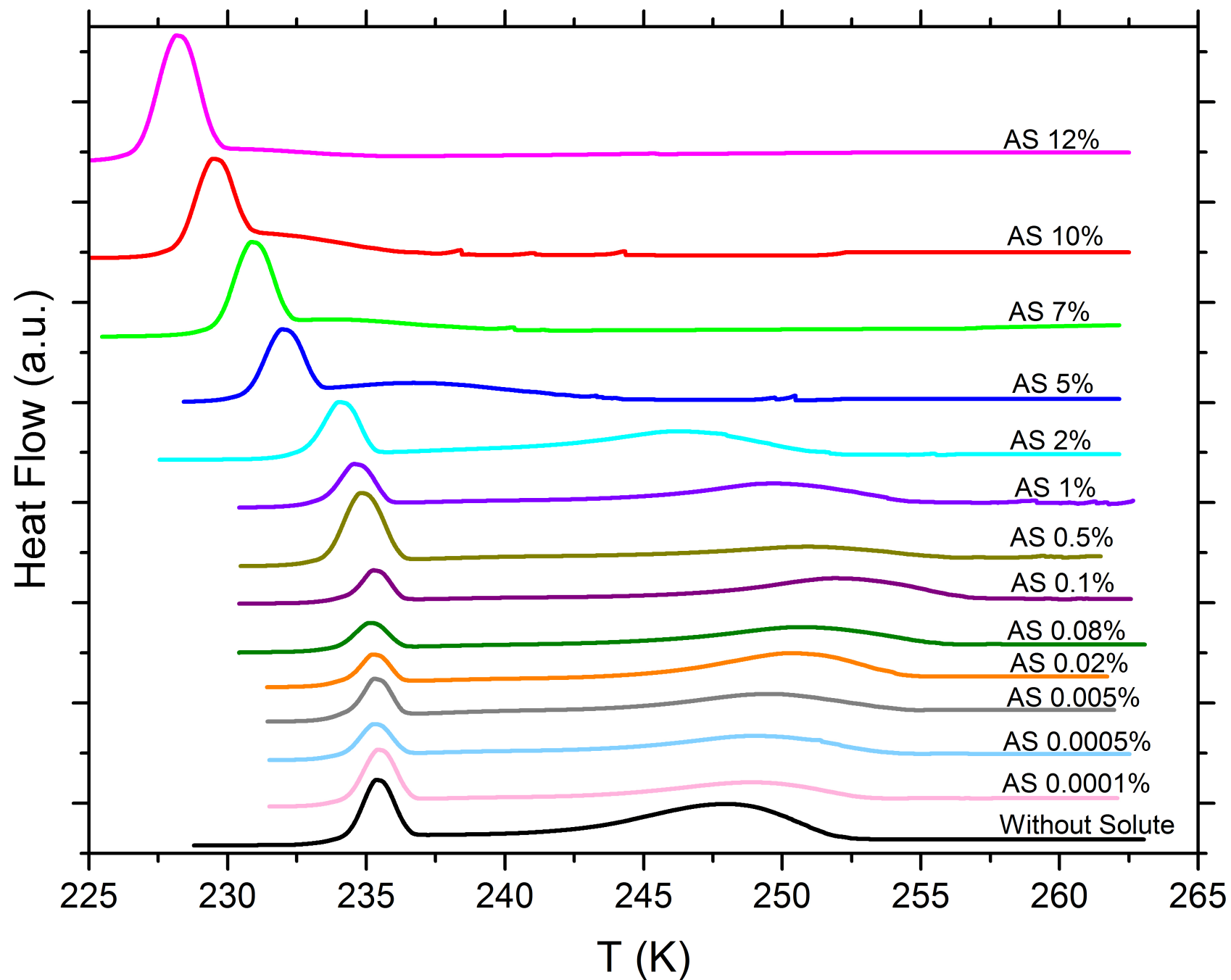


## **S1 DSC Thermograms of immersion freezing with emulsions of freshly prepared microcline suspensions in water or aqueous solutions**

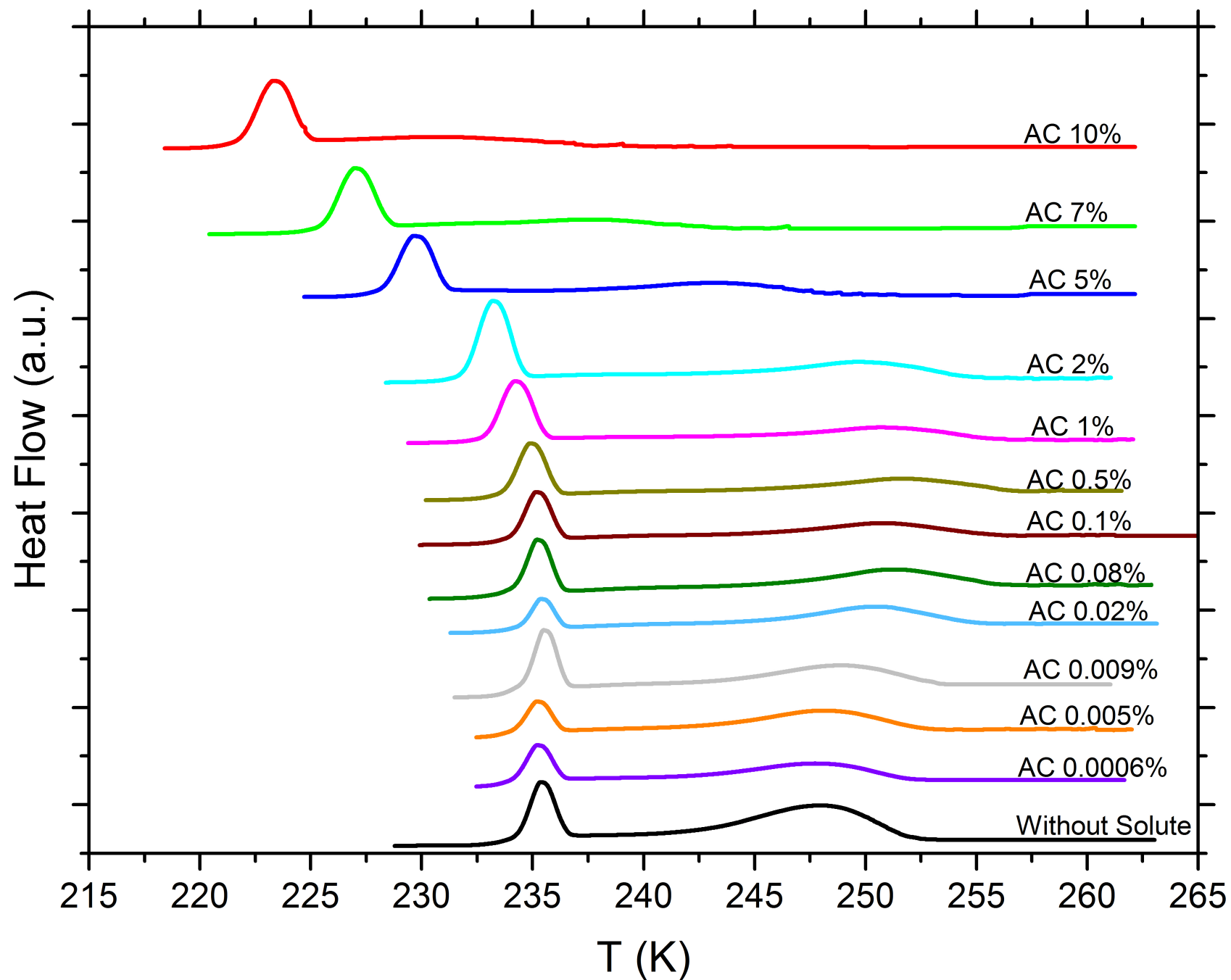
We show one set of DSC thermograms ( $1\text{ K min}^{-1}$  cooling cycle) for each solute concentration for the freshly prepared and tested emulsions.



**Figure S1.** DSC thermograms of 2 wt% of microcline particles suspended in ammonium bisulfate (ABS) solution droplets of varying concentration. All curves are normalized such that the areas under the heterogeneous and homogeneous freezing curves sum up to the same value. Numbers next to each curve: Solute Concentration (in wt%) ABS: Ammonium Bisulfate

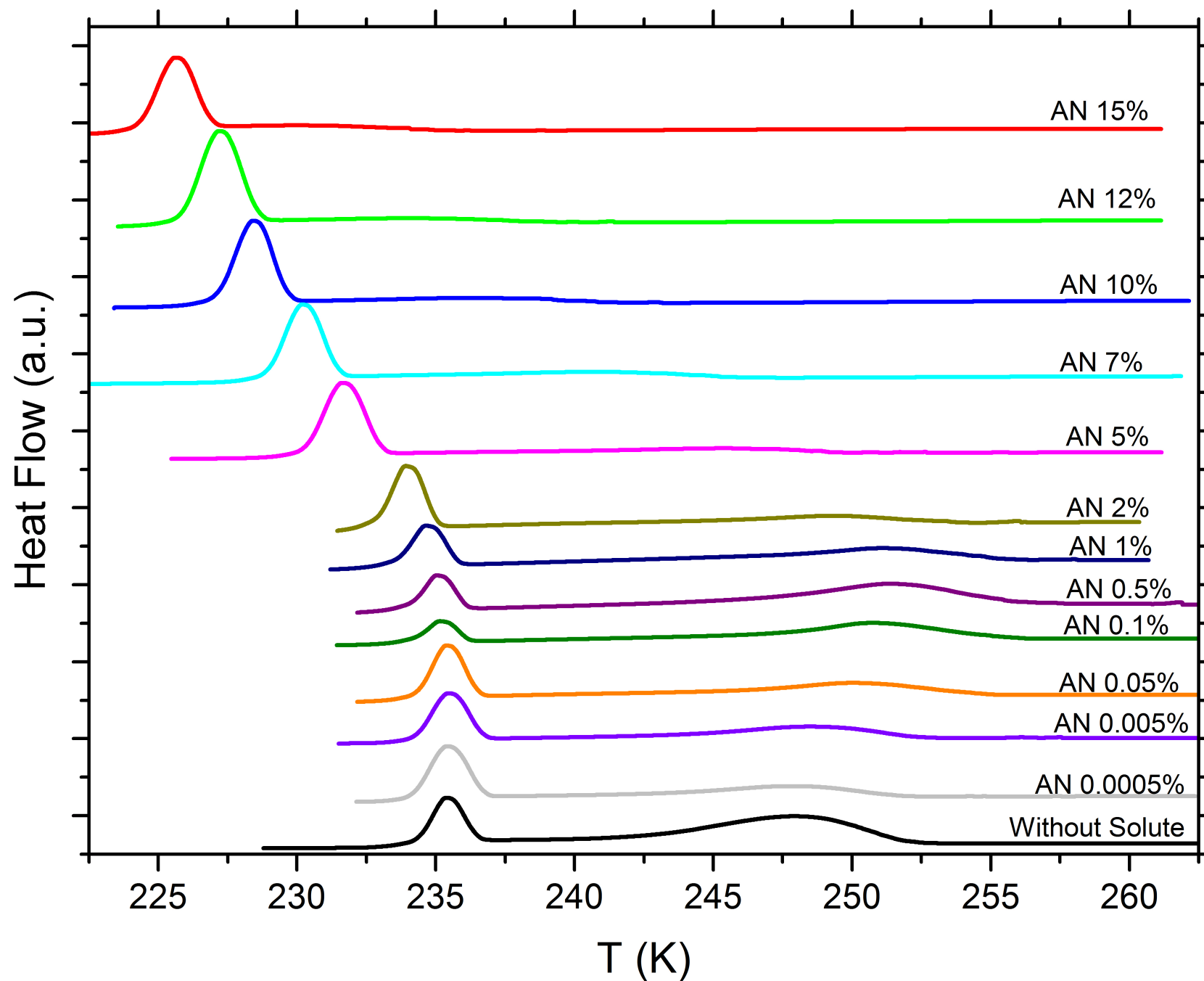


**Figure S2.** DSC thermograms of 2 wt% of microcline particles suspended in ammonium sulfate (AS) solution droplets of varying concentration. All curves are normalized such that the areas under the heterogeneous and homogeneous freezing curves sum up to the same value. Numbers next to each curve: Solute Concentration (in wt%) AS: Ammonium Sulfate

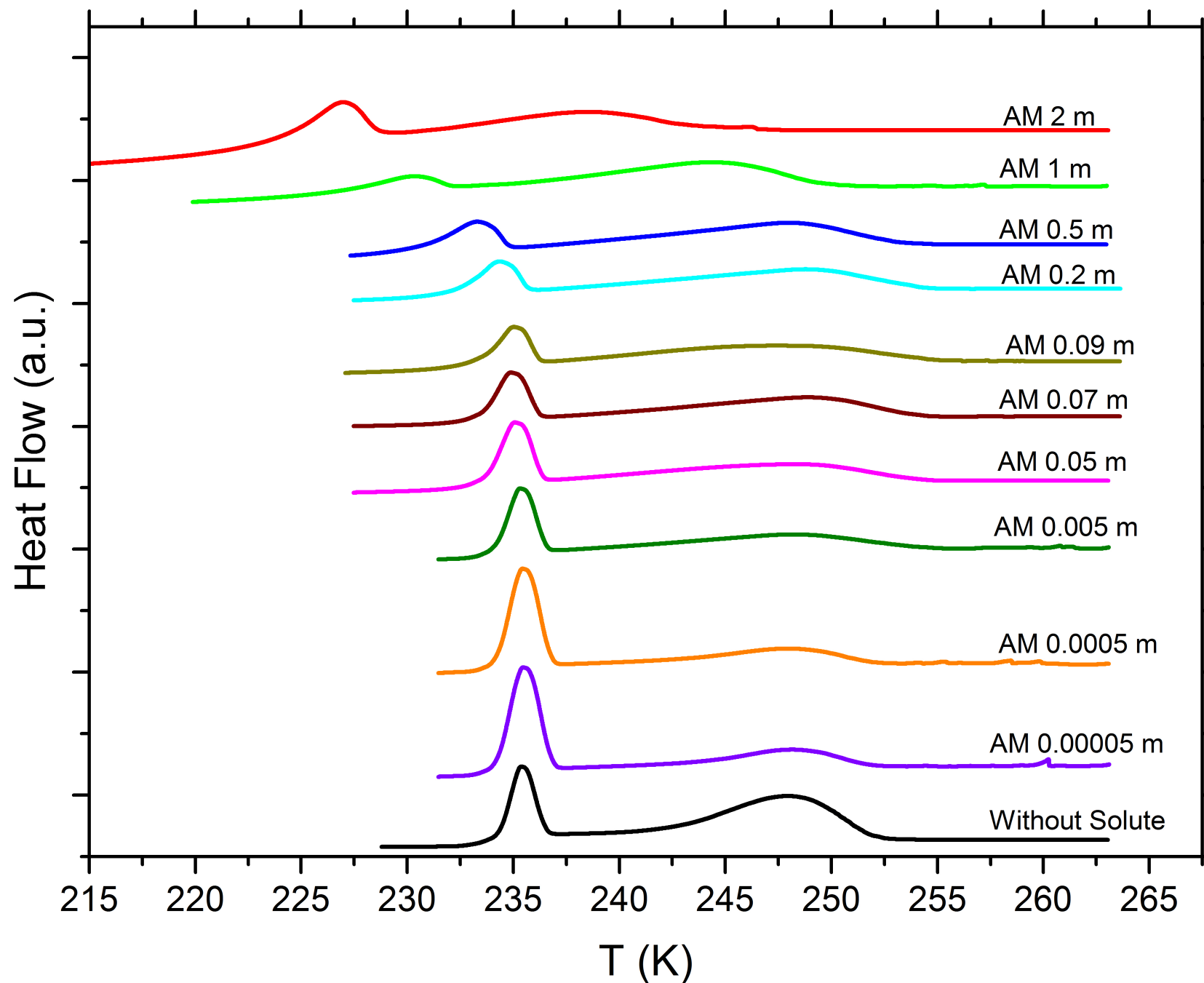


**Figure S3.** DSC thermograms of 2 wt% of microcline particles suspended in ammonium chloride (AC) solution droplets of varying concentration. All curves are normalized such that the areas under the heterogeneous and homogeneous freezing curves sum up to the same value. Numbers next to each curve: Solute Concentration (in wt%) AC: Ammonium Chloride

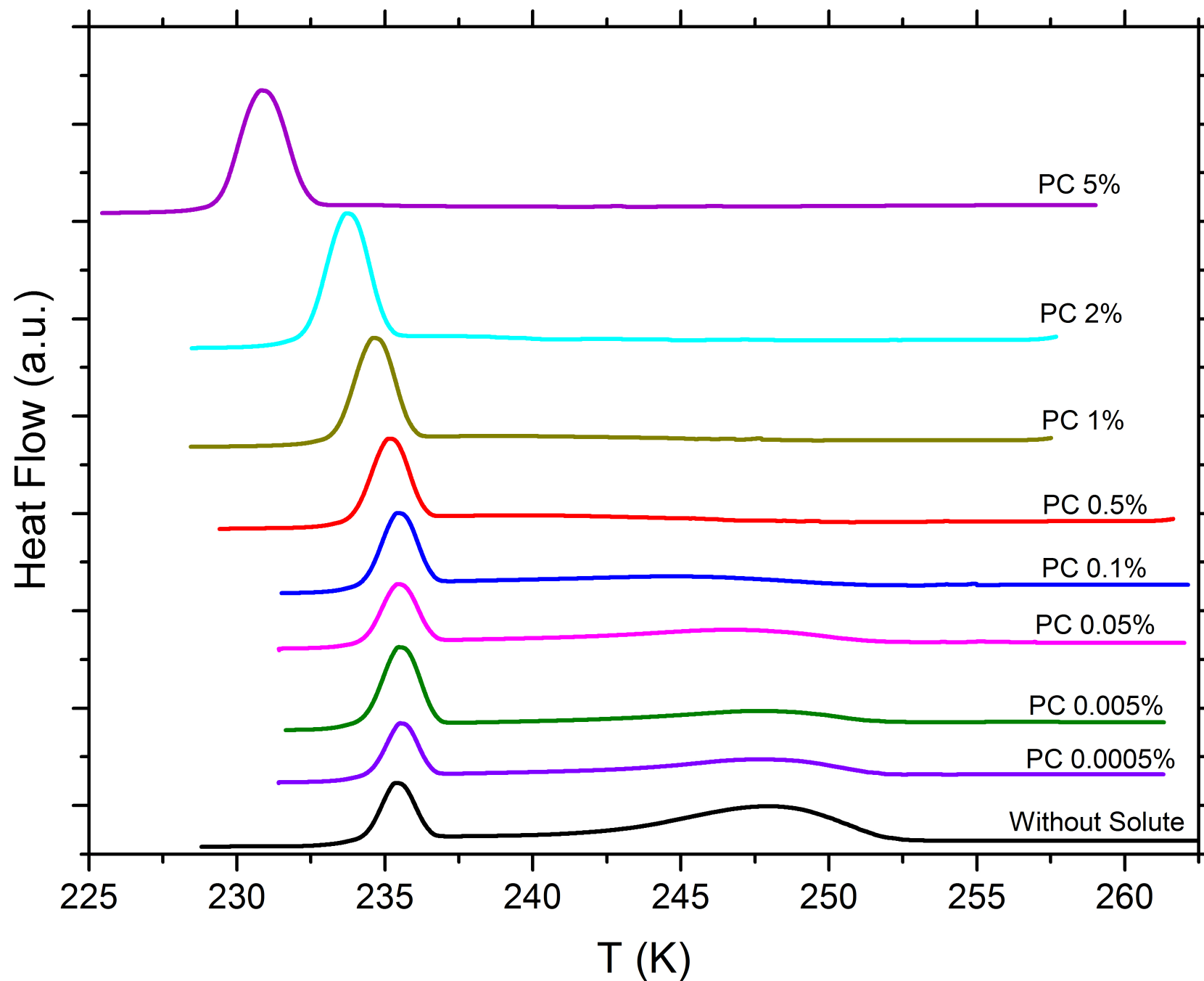




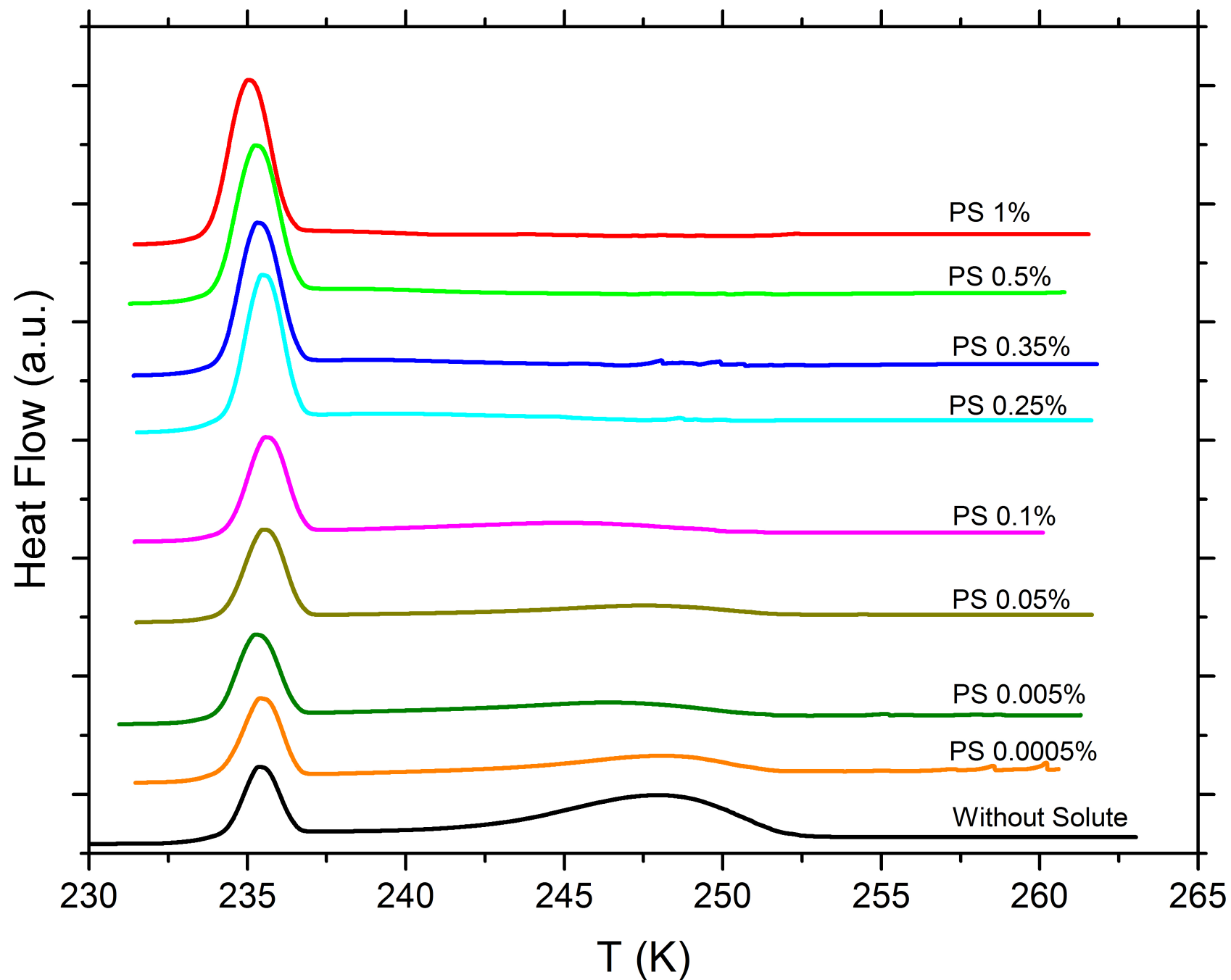
**Figure S4.** DSC thermograms of 2 wt% of microcline particles suspended in ammonium nitrate (AN) solution droplets of varying concentration. All curves are normalized such that the areas under the heterogeneous and homogeneous freezing curves sum up to the same value. Numbers next to each curve: Solute Concentration (in wt%) AN: Ammonium Nitrate



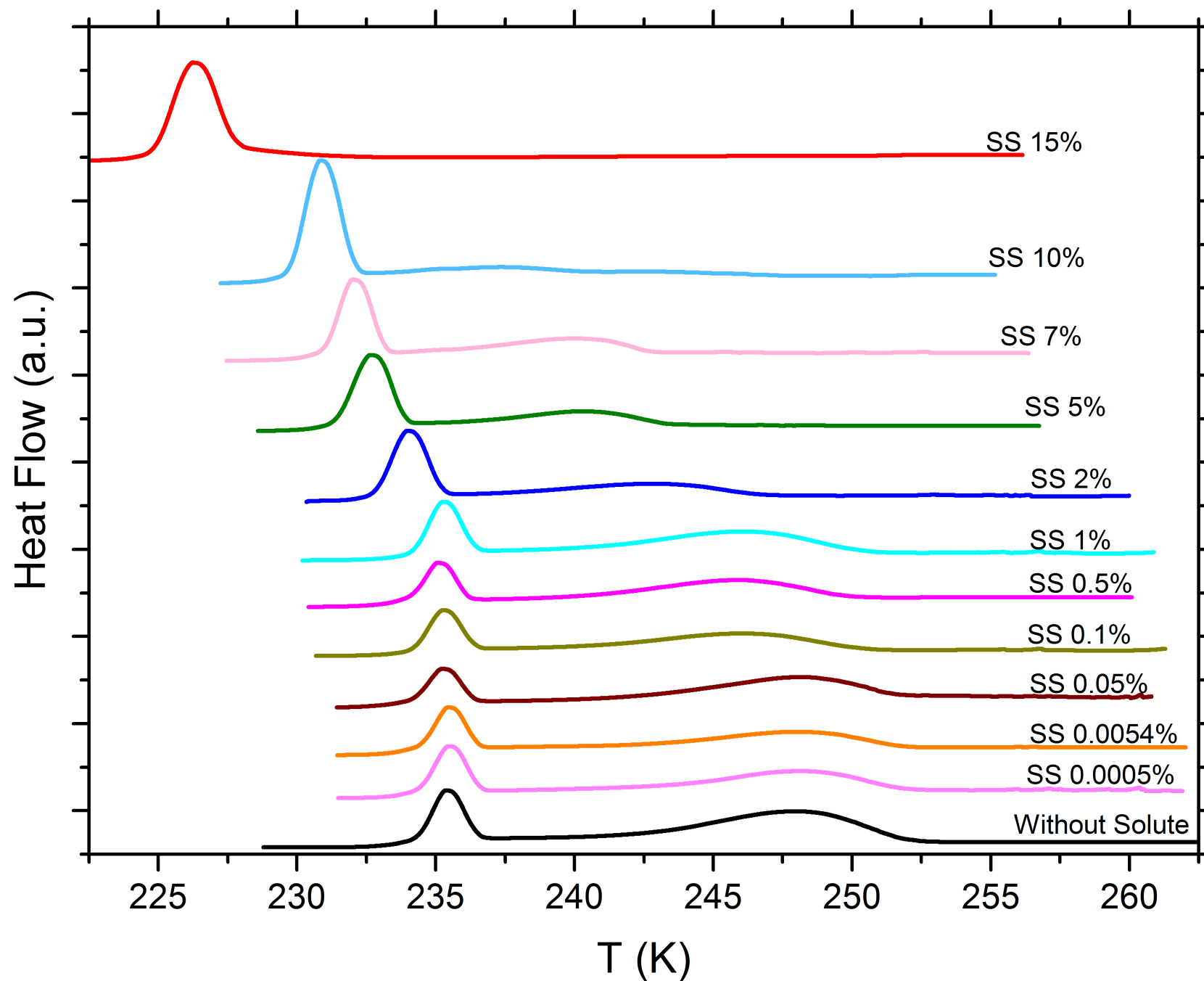
**Figure S5.** DSC thermograms of 2 wt% of microcline particles suspended in ammonia solution (AM) solution droplets of varying concentration. All curves are normalized such that the areas under the heterogeneous and homogeneous freezing curves sum up to the same value. Numbers next to each curve: Solute Concentration (in molal) AM: Ammonia



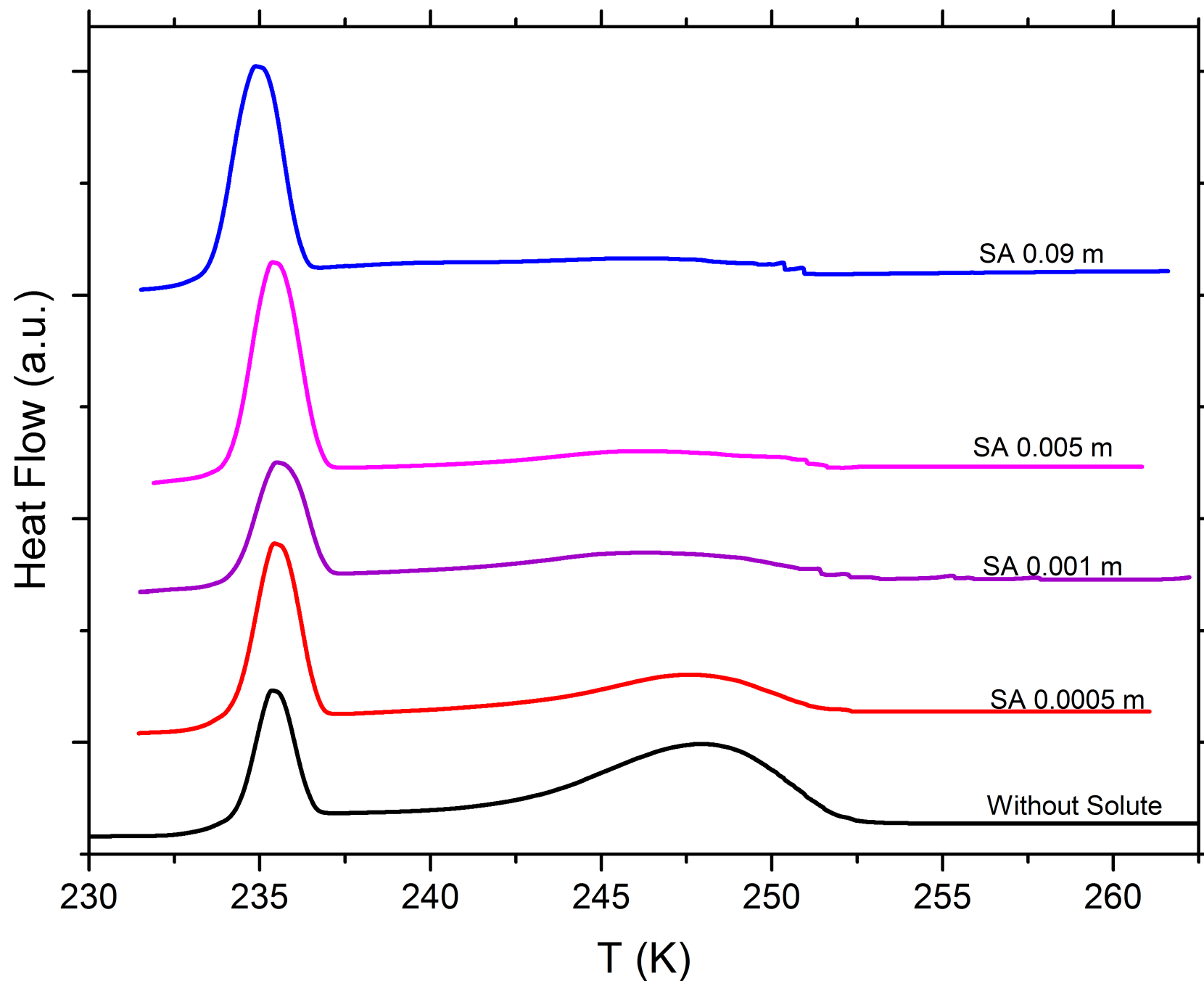
**Figure S6.** DSC thermograms of 2 wt% of microcline particles suspended in potassium chloride (PC) solution droplets of varying concentration. All curves are normalized such that the areas under the heterogeneous and homogeneous freezing curves sum up to the same value. Numbers next to each curve: Solute Concentration (in wt%) PC: Potassium Chloride



**Figure S7.** DSC thermograms of 2 wt% of microcline particles suspended in potassium sulfate (PS) solution droplets of varying concentration. All curves are normalized such that the areas under the heterogeneous and homogeneous freezing curves sum up to the same value. Numbers next to each curve: Solute Concentration (in wt%) PS: Potassium Sulfate



**Figure S8.** DSC thermograms of 2 wt% of microcline particles suspended in sodium sulfate (SS) solution droplets of varying concentration. All curves are normalized such that the areas under the heterogeneous and homogeneous freezing curves sum up to the same value. Numbers next to each curve: Solute Concentration (in wt%) SS: Sodium Sulfate



**Figure S9.** DSC thermograms of 2 wt% of microcline particles suspended in sulfuric acid (SA) solution droplets of varying concentration. All curves are normalized such that the areas under the heterogeneous and homogeneous freezing curves sum up to the same value. Numbers next to each curve: Solute Concentration (in molal) SA: Sulfuric Acid