

S3 Reversibility of interactions between microcline and solutes tested in immersion freezing experiments

Suspensions of 2 wt% microcline prepared with relatively high solute concentration — 10 wt % $(\text{NH}_4)_2\text{SO}_4$, 2 wt % NH_4HSO_4 , 0.5 wt % K_2SO_4 , 2 molal ammonia solution — were aged for 10 days. The aged suspensions were then centrifuged and the particles were washed multiple times with pure water. The aged particles were resuspended either in pure water or in dilute solution of the same solute as in the beginning (i.e. water, 0.1 wt % $(\text{NH}_4)_2\text{SO}_4$, 0.5 wt % NH_4HSO_4 , 0.05 wt % K_2SO_4 , 0.05 molal NH_3 solution). Using DSC, we compared immersion freezing of emulsions containing dust treated in this manner with emulsions of the same solute concentration prepared with fresh dust. Each measurement was done in duplicates. The following figures show one set of DSC thermograms (1 K min^{-1} cooling cycle) for the treated particles resuspended either in pure water or in dilute solution of the same solute used for aging.

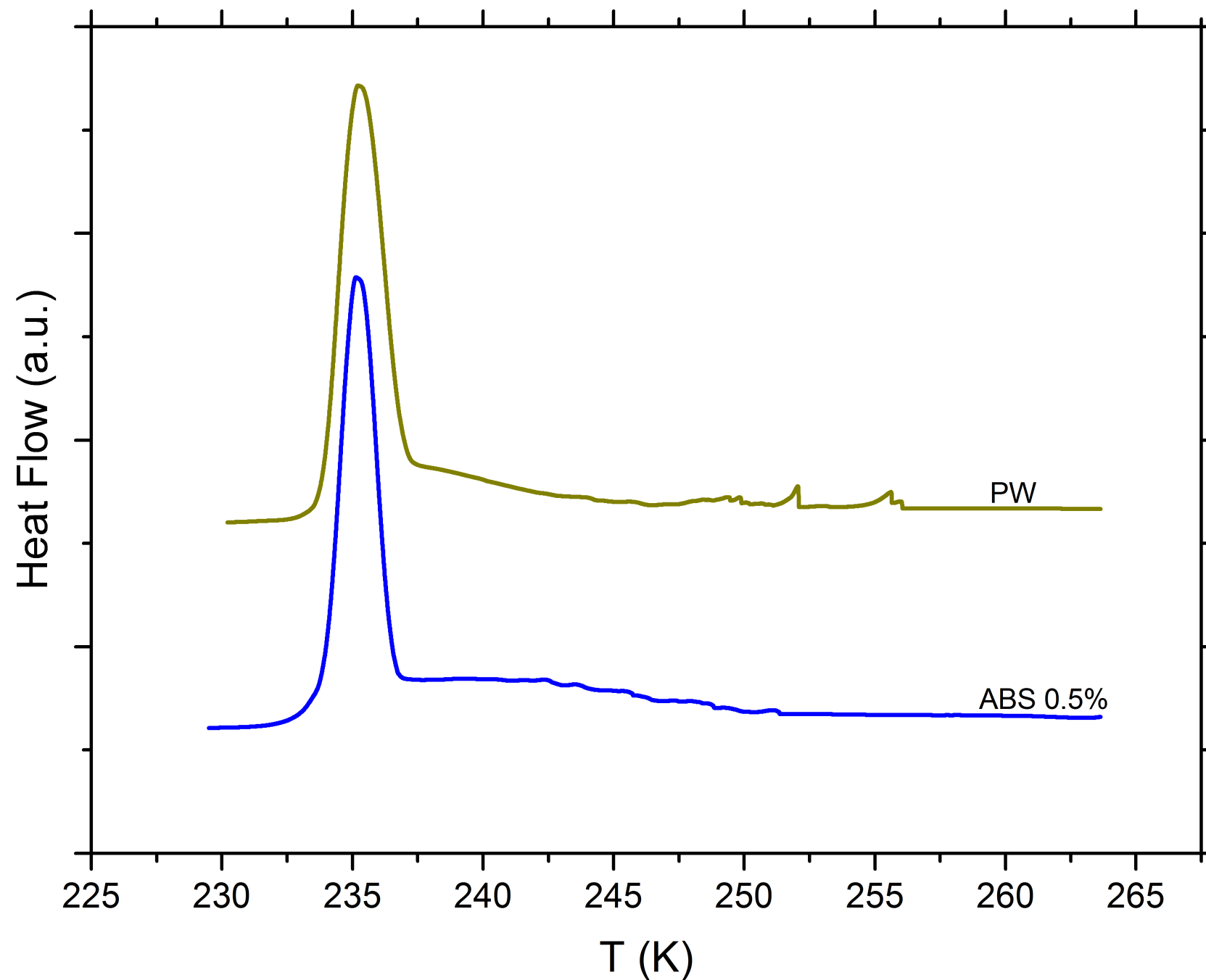


Figure S14. DSC thermograms of aged microcline resuspended in pure water (PW) and ammonium bisulfate (ABS) 0.5wt%. Aging Solution: 2 wt% Ammonium Bisulfate. Aging Period: 10 days.

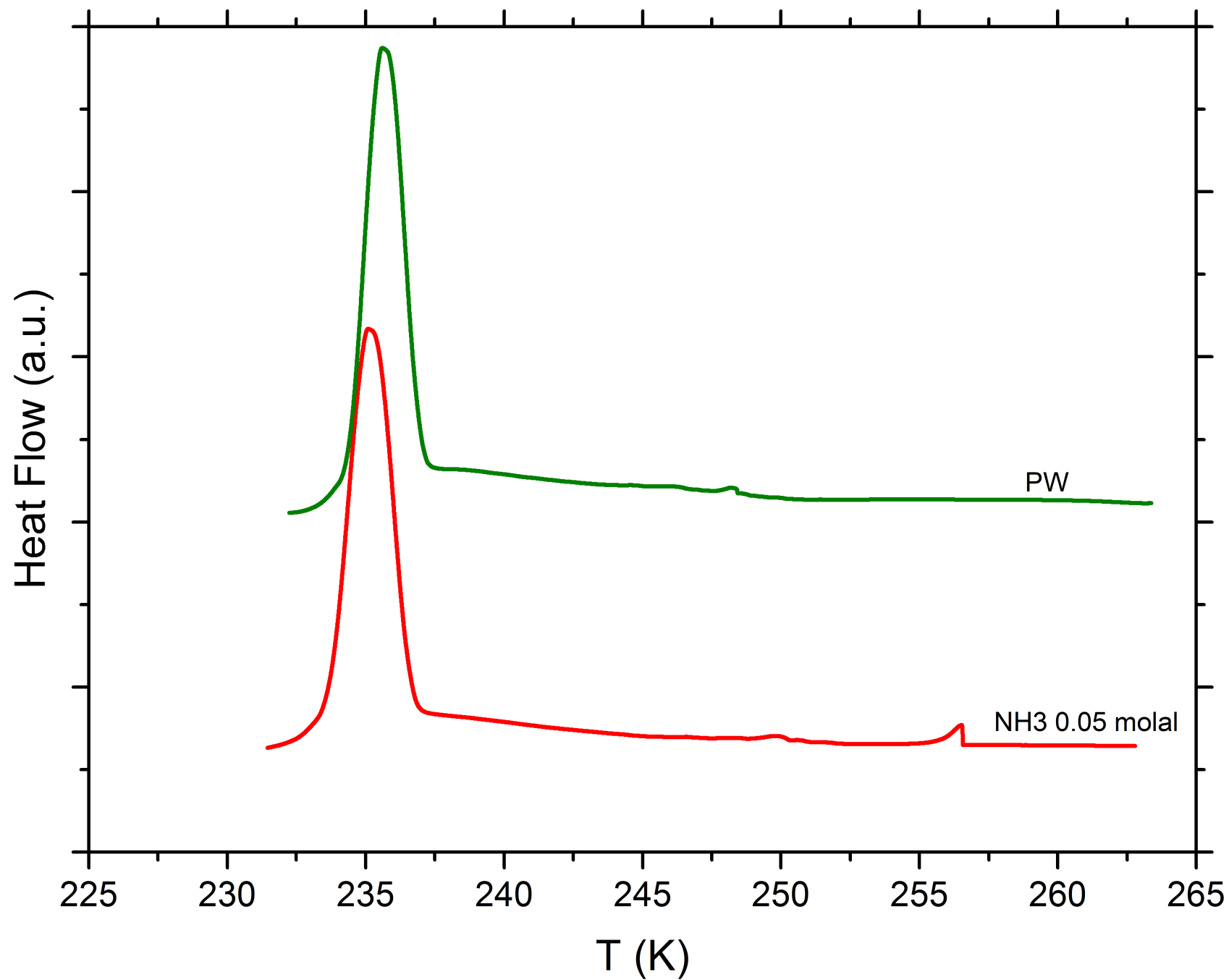


Figure S15. DSC thermograms of aged microcline resuspended in pure water (PW) and ammonia solution (NH_3) 0.05 molal. Aging Solution: ammonia solution 2 molal. Aging Period: 10 days.

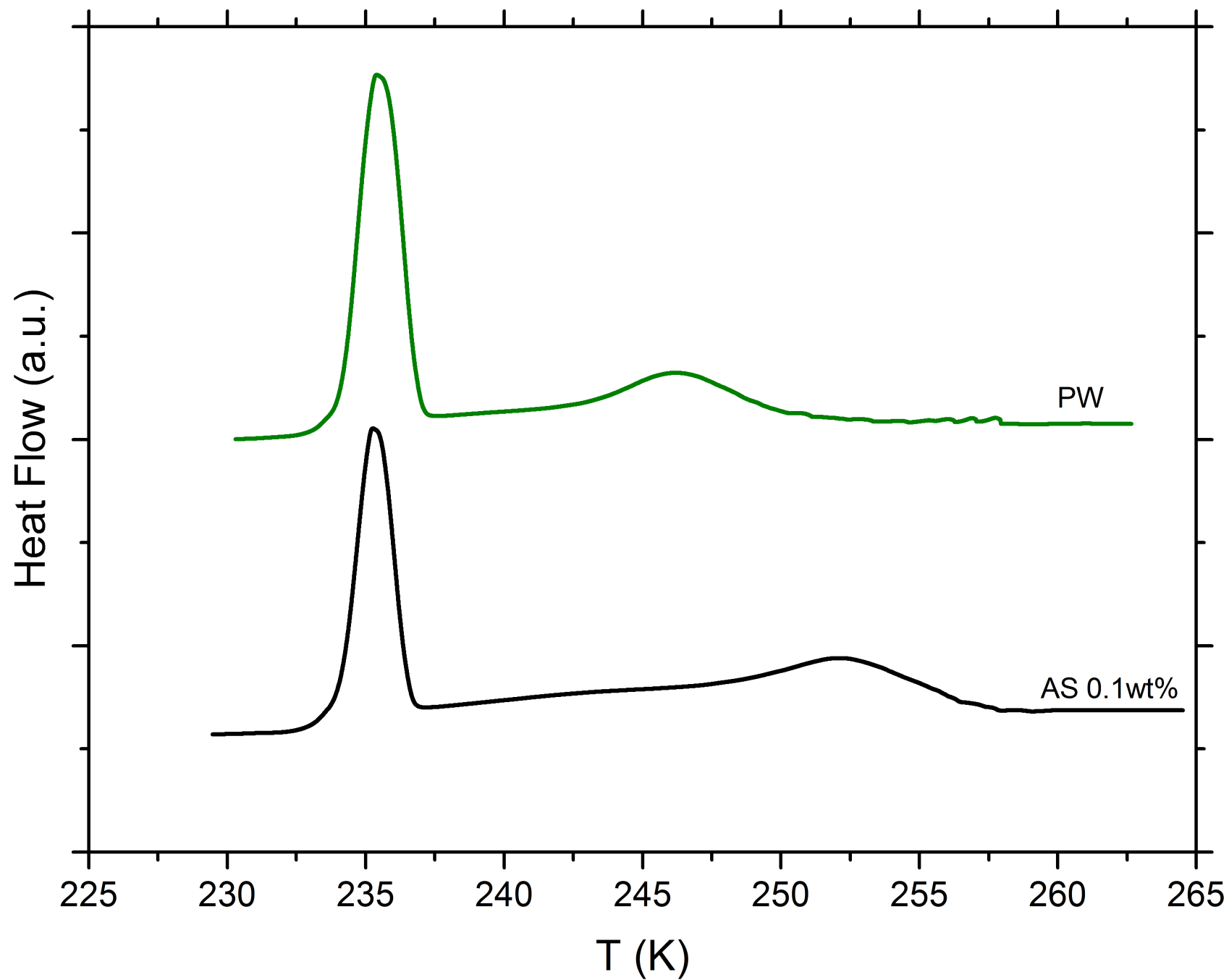


Figure S16. DSC thermograms of aged microcline resuspended in pure water (PW) and ammonium sulfate (AS) 0.1wt%. Aging Solution: 10 wt% Ammonium Sulfate. Aging Period: 10 days.

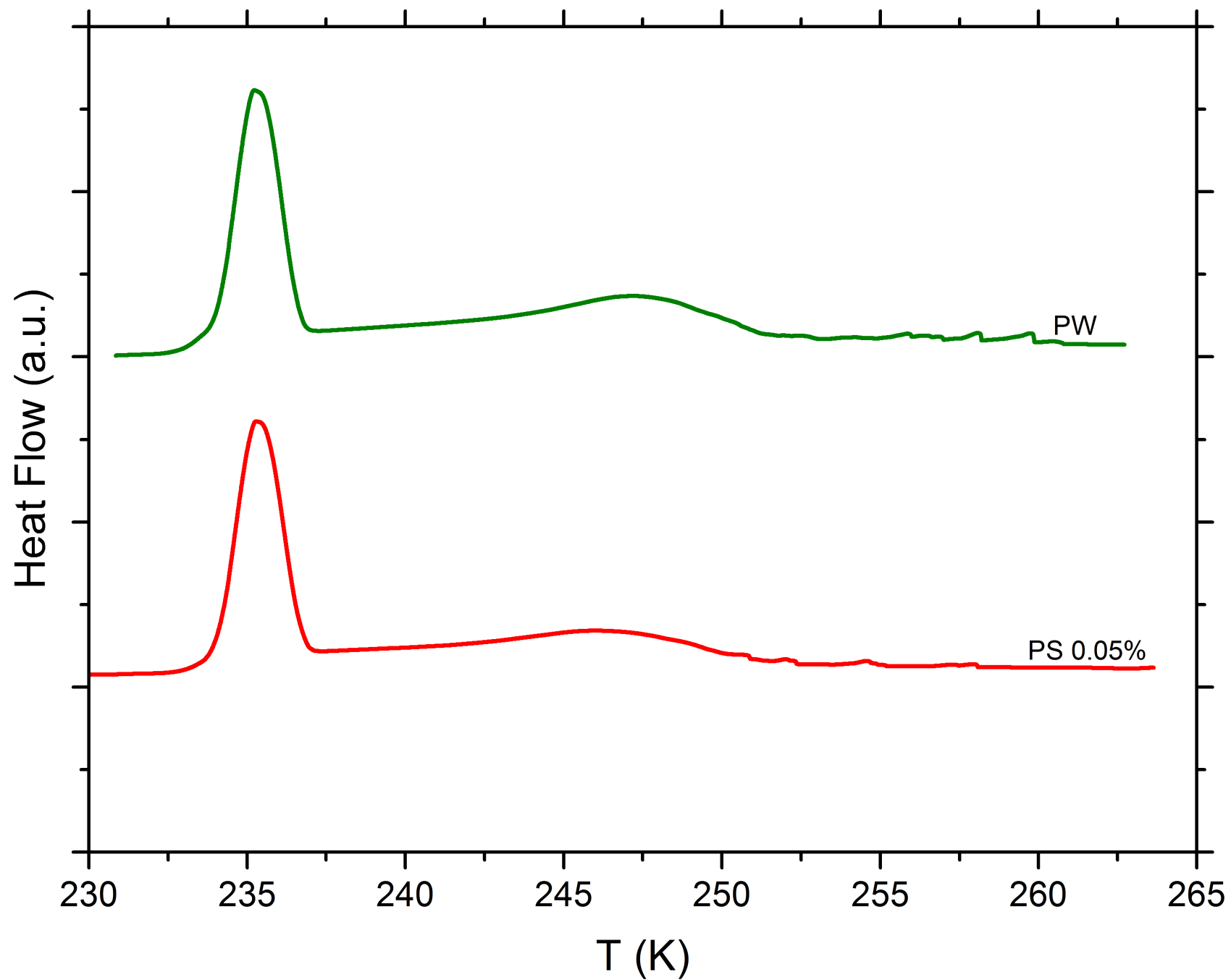


Figure S17. DSC thermograms of aged microcline resuspended in pure water (PW) and potassium sulfate (PS) 0.5wt%. Aging Solution: 0.5 wt% Potassium Sulfate. Aging Period: 10 days.