

Whittington, A.G., and Sehlke, A., 2021, Spontaneous reheating of crystallizing lava: *Geology*, v. 49, <https://doi.org/10.1130/G49148.1>

Supplementary Information

SI Table 1. Excel spreadsheet. Electron microprobe analyses of phases from FLIR experiments. and from DSC experiments pyx 150714 and kom 151021. Data obtained on a JEOL JXA-8200 at Washington University in St. Louis, using five wavelength dispersive spectrometers (WDS), calibrated using oxide and silicate standards, with data corrected using CITZAF. Analyses were made using a 20 μm beam diameter, 15 kV accelerating potential, and 25 nA beam current.

SI Table 2. Summary of DSC experiments and thermodynamic data. $\Delta H^{\text{xtal}}\uparrow$ indicates enthalpy released by crystallization during heating, ΔH^{fus} indicates enthalpy absorbed by melting during heating, and $\Delta H^{\text{xtal}}\downarrow$ indicates enthalpy released by crystallization during cooling.

Run date	Sample	Weight (mg)	Cooling rate (°C/min)	$\Delta H^{\text{xtal}}\downarrow$ (J/g)	Peak 1 (°C)	Peak 2 (°C)
150227	$\text{Fe}_{0.4}\text{Mg}_{0.6}\text{SiO}_3$	42.7	100	-472	1313	1273
150714	$\text{Fe}_{0.4}\text{Mg}_{0.6}\text{SiO}_3$	46.4	50	-418	1316	1264
150826	$\text{Fe}_{0.4}\text{Mg}_{0.6}\text{SiO}_3$	44.6	50	-484	1355	1281
160121 ^a	$\text{Fe}_{0.4}\text{Mg}_{0.6}\text{SiO}_3$	28.9	50	-439	1346	1279
150309	Komatiite	32.5	100	-291	1121	1069
150617	Komatiite	23.9	100	>-233 ^b	1126	1076
150828 ^c	Komatiite	49.8	50	-293	1138	1080
151021	Komatiite	53.6	50	-272	1139	986

^a additional peak at 1353°C during cooling

^b data collection stopped at 900°C, underestimating ΔH^{xtal} by ~5-10 J/g

^c additional peaks at 1179°C and 1035°C during cooling

SI Movie 1. Crystallizing pyroxene melts of composition $\text{Fe}_{0.3}\text{Mg}_{0.7}\text{SiO}_3$ and $\text{Fe}_{0.4}\text{Mg}_{0.6}\text{SiO}_3$ recorded with an iPhone 5 in real time.

SI Movie 2. Crystallizing pyroxene melts of composition $\text{Fe}_{0.4}\text{Mg}_{0.6}\text{SiO}_3$ recorded with a FLIR T650sc. Crystallization occurs between 7s and 15s.

SI Movie 3. Crystallizing melts of komatiite composition recorded with a FLIR T650sc. Crystallization occurs between 7s and 9s.

SI Movie 4. Crystallizing melts of komatiite composition recorded with a FLIR T650sc, the same experiment as shown in movie S3 but processed to show the temperature change over a 10-frame (0.3s) interval.