Supporting Information

Physicochemical Properties of Bis(fluorosulfonyl)amide-Based Ionic Liquids Mixed with Mg and Sr Doped Cubic $Li_7La_3Zr_2O_{12}$ Powder

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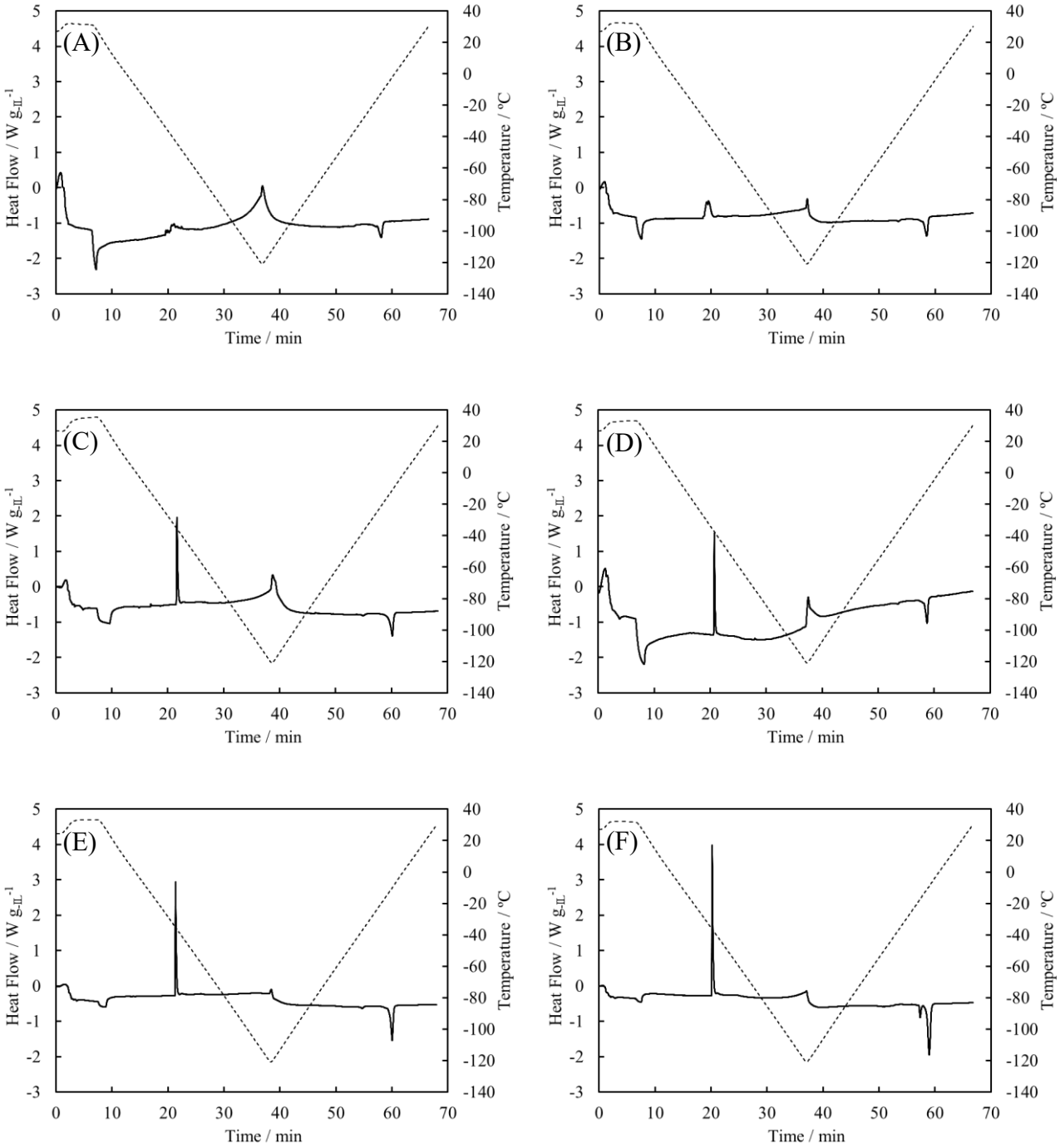
Table S1. Relationships between the volume ratio of IL and t_{IL} in LLZ-IL mixtures.

IL	Volume ratio of IL / vol%	t_{IL} / nm
P13FSA	13.5	8.11
P13FSA	16.5	10.3
P13FSA	19.3	12.4
P13FSA	21.9	14.6
P13FSA	29.2	21.7
P13FSA	41.1	36.4
P13FSA	48.3	48.7
EMIFSA	9.72	5.76
EMIFSA	15.5	9.54
EMIFSA	27.9	20.2
EMIFSA	46.5	46.5


(A)
(B)
(C)
(D)
(E)
(F)
Heat Flow / W g-IL-1
Temperature / °C
Time / min

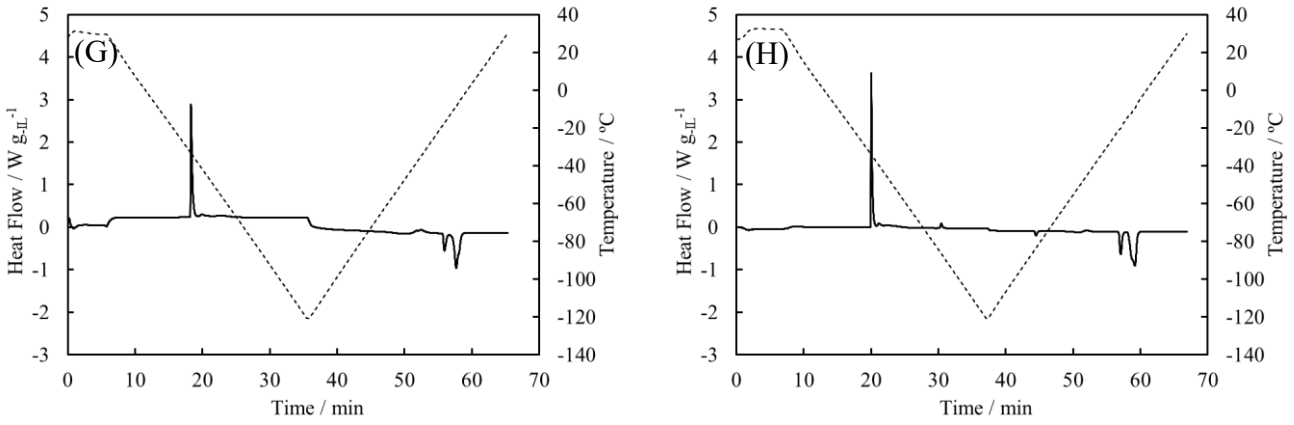


Figure S1. DSC curve of LLZ-P13FSA, (A) t_{IL} = 8.11 nm, (B) t_{IL} = 10.3 nm, (C) t_{IL} = 12.4 nm, (D) t_{IL} = 14.6 nm, (E) t_{IL} = 21.7 nm, (F) t_{IL} = 36.4 nm, (G) t_{IL} = 48.7 nm, (H) neat P13FSA, heat flow is based on P13FSA mass (g_{-IL}), temperature scan rate: 5 °C min^{-1}.

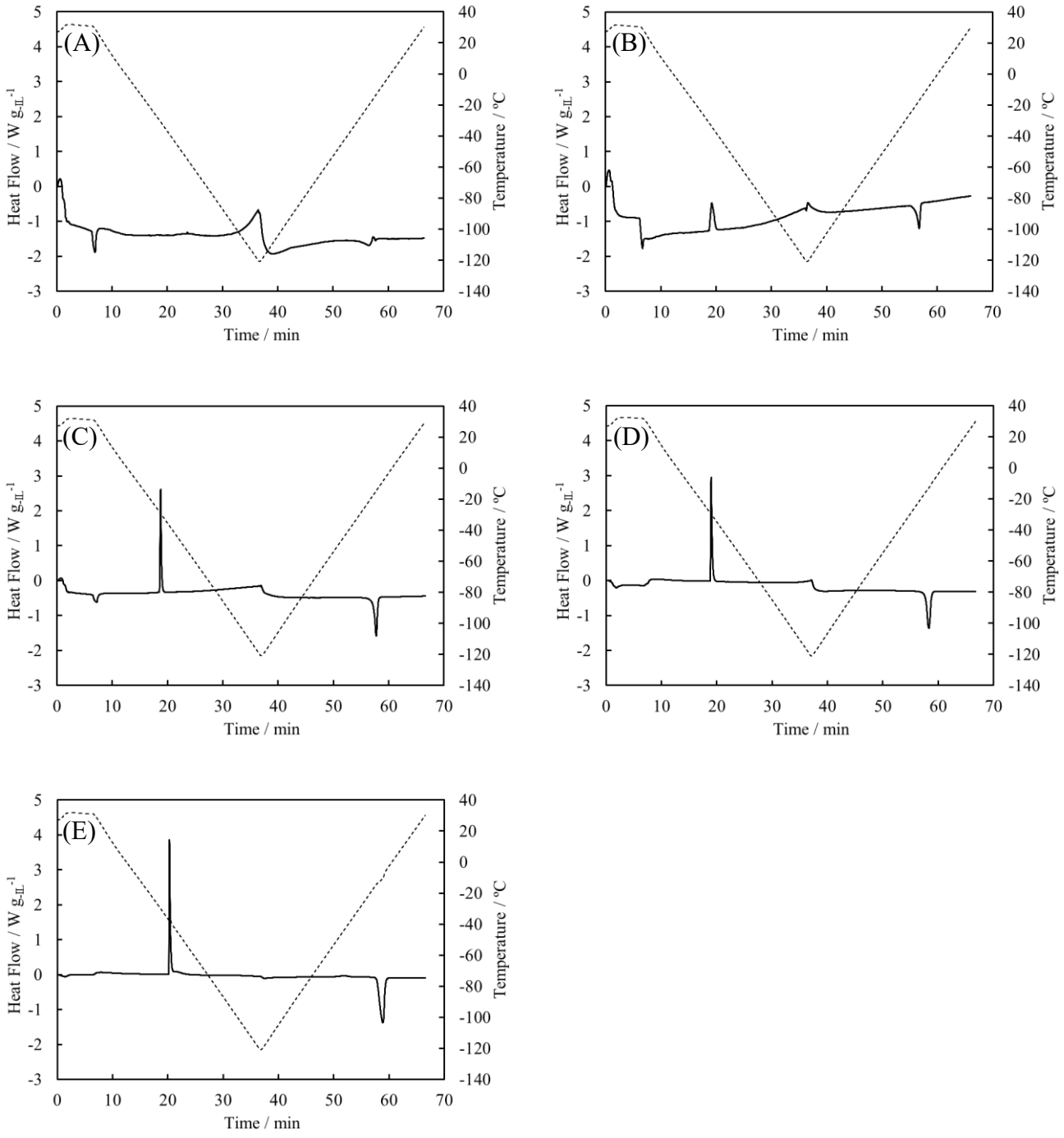


Figure S2. DSC curve of LLZ-EMIFSA, (A) t_{IL} = 5.76 nm, (B) t_{IL} = 9.54 nm, (C) t_{IL} = 20.2 nm, (D) t_{IL} = 46.5 nm, (E) neat EMIFSA, heat flow is based on P13FSA mass (g_{-IL}), temperature scan rate: 5 °C min^{-1}.