Table 2: Limits and constraints used for the retrieval of D $_f$H° and S° for kaolinite and pyrophyllite

Limits:

239.8 > S°$_{Prl}$ > 239.0, -5593896 > D $_f$H°$_{Prl}$ > -5706904 (in Joules/mole)

202.25 > S°$_{Kln}$ > 185.0, -4174936.0 > D $_f$H°$_{Kln}$ < -4039304.0 (in Joules/mole)

Constraints:

For each reaction, assemblages on the right hand side of the ">" sign are stable at the P and T conditions specified. Italicized constraints were only used in obtaining the unique solution at S°$_{Kln}$ = 187.44 (with Mc-2' used instead of Mc-2), but were not used to obtain the area of feasible solutions indicated in the text.

Label	**T (°C)**	**P (bars)**	**Reaction**
Ze-1	25	500	Kln + lAb < 2 a Qz + Pg + H_2O
Ze-2	*90*	*1000*	*Kln + lAb < 2* a *Qz + Pg + H_2O*
Ze-3	200	1000	Kln + lAb > 2 a Qz + Pg + H_2O
C84-1	400	3000	Prl < 4 a Qz + Cor + H_2O
C84-2	435	5000	Prl < 4 a Qz + Cor + H_2O
C84-3	450	7000	Prl < 4 a Qz + Cor + H_2O
C84-4	485	10625	Prl < 4 a Qz + Cor + H_2O
C84-5	475	3000	Prl > 4 a Qz + Cor + H_2O
C84-6	510	5000	Prl > 4 a Qz + Cor + H_2O
C84-7	562	10000	Prl > 4 a Qz + Cor + H_2O
HH73-1	390	3625	Prl < And + 3 a Qz + H_2O
HH73-2	410	4875	Prl < And + 3 a Qz + H_2O
HH73-3	450	7185	Prl < And + 3 a Qz + H_2O
HH73-4	420	3500	Prl > And + 3 a Qz + H_2O
HH73-5	440	4685	Prl > And + 3 a Qz + H_2O
N72-1	400	9625	4 Lw + 2 a Qz < 6 H_2O + 2 Zo + Prl
N72-2	360	7180	4 Lw + 2 a Qz < 6 H_2O + 2 Zo + Prl
N72-3	440	6800	4 Lw + 2 a Qz > 6 H_2O + 2 Zo + Prl
N72b1	460	6800	12 Lw > Prl + 6 Zo + 2 Ky + 20 H_2O
N72b2	375	3870	12 Lw > Prl + 6 Zo + 2 Ky + 20 H_2O
N72b3	375	7180	12 Lw < Prl + 6 Zo + 2 Ky + 20 H_2O
N72b4	400	9680	12 Lw < Prl + 6 Zo + 2 Ky + 20 H_2O

Hem-1	285	1000	Kln + 2 a Qz > Prl + H_2O
Mc-1	330	5000	Kln + 2 a Qz > Prl + H_2O
Mc-2'	*300*	*5550*	*Kln + 2* a *Qz < Prl + H_2O*
Th-1	330	1000	Kln + 2 a Qz > Prl + H_2O
Th-2	350	2000	Kln + 2 a Qz > Prl + H_2O
Th-4	390	4000	Kln + 2 a Qz > Prl + H_2O