

Supplementary Information
Equilibrium Distribution of Polysulfide Ions in Aqueous Solutions at Different Temperatures by Rapid
Single Phase Derivatization
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The SI section includes 3 Tables in 2 pages (including this page).

Table S-1. K_n values (Equation 2) and their corresponding relative standard deviations (RSD).

T, °C	$K_3, *10^{12}$, (RSD)	$K_4, *10^{12}$, (RSD)	$K_5, *10^{12}$, (RSD)	$K_6, *10^{12}$, (RSD)	$K_7, *10^{12}$, (RSD)	$K_8, *10^{12}$, (RSD)
4	20.4 (48%)	101 (35%)	146 (24%)	87.1 (22%)	22.7 (12%)	4.12 (21%)
25	44.2 (31%)	227 (6%)	347 (5%)	198 (6%)	52.1 (13%)	9.49 (23%)
30	42.1 (14%)	269 (9%)	366 (7%)	246 (6%)	65.2 (8%)	16.9 (15%)
37	64.3 (21%)	344 (15%)	497 (12%)	335 (11%)	99.6 (18%)	25.8 (27%)
44	78.4 (40%)	450 (17%)	656 (18%)	461 (15%)	149 (26%)	37.3 (25%)
53	94.9 (39%)	558 (28%)	861 (32%)	640 (26%)	194 (34%)	55.9 (27%)

Table S-2. ΔH° and its standard deviation calculated based on un-weighted linear regression analysis (reference (19)).

n	ΔH° , KJ/mol	SD
3	6.4	1.8
4	9.0	0.9
5	9.6	1.0
6	13.2	0.5
7	16.4	1.6
8	23.8	2.8

Table S-3. ΔH° and its standard deviation based on weighted linear regression analysis (reference (19)).

n	ΔH° , KJ/mol	SD
3	6.6	0.1
4	9.0	0.1
5	9.6	0.1
6	13.3	0.1
7	16.5	0.1
8	23.8	0.2