

Table S1. Physical properties of chemical elements used in machine learning model										
Element	Z	$m_{\text{a}}, \text{a.e.m.}$	r_{c}, pm	E_{i}, eV	T_{m}, K	$C_{\text{s}}, \text{J/(g}\cdot\text{K)}$	$\rho, \text{g/cm}^3$	χ	T_{b}, K	$\lambda, \text{W/(m}\cdot\text{K)}$
Li	3	6.941	121	5.3917	453.7	3.6	0.535	1	1603	85
Be	4	9.0121	96	9.3226	1570	1.82	1.848	1.6	2742	190
B	5	10.811	84	8.298	2348	1.02	2.46	2	4200	27
Mg	12	24.305	141	7.6462	923	1.02	1.738	1.3	1363	160
Al	13	26.9815	121	5.9858	933.5	0.9	2.7	1.6	2743	235
Si	14	28.0855	111	8.1517	1687	0.71	2.33	1.9	3538	150
P	15	30.9737	107	10.487	317.3	0.77	1.823	2.2	553.7	0.236
Ca	20	40.078	176	6.1132	1115	0.63	1.55	1	1757	200
Sc	21	44.9559	170	6.5614	1814	0.6	2.985	1.4	3109	16
Ti	22	47.867	160	6.8282	1941	0.52	4.507	1.5	3560	22
Cr	24	51.9961	139	6.7666	2180	0.45	7.14	1.7	2944	94
Fe	26	55.845	132	7.9024	1811	0.44	7.874	1.8	3134	80
Co	27	58.933	126	7.881	1768	0.42	8.9	1.9	3200	100
Ni	28	58.6934	124	7.6398	1728	0.44	8.908	1.9	3003	91
Cu	29	63.546	132	7.7264	1358	0.38	8.92	1.9	2835	400
Zn	30	65.38	122	9.3941	692.7	0.39	7.14	1.7	1180	120
Y	39	88.906	190	6.217	1799	0.3	4.472	1.2	17	3203
Zr	40	91.224	175	6.6339	2128	0.27	6.511	1.3	4650	23
Nb	41	92.906	164	6.7589	2750	0.26	8.57	1.6	5017	54
Mo	42	95.96	154	7.0924	2896	0.25	10.28	2.2	4912	139
Pd	46	106.42	139	8.3369	1828	0.24	12.023	2.2	3236	72
Ag	47	107.87	144	7.5762	1235	0.235	10.49	1.9	2435	430
Sn	50	118.71	139	7.3438	505.1	0.227	7.31	2	2875	67
La	57	138.91	207	5.577	1193	0.19	6.146	1.1	3737	13
Ce	58	140.116	204	5.5387	1071	0.19	6.689	1.1	3716	11
Pr	59	140.908	203	5.464	1204	0.19	6.64	1.1	3403	13
Gd	64	157.25	196	6.15	1568	0.23	7.901	1.2	3273	11
Er	68	167.26	189	6.1078	1770	0.17	9.066	1.2	3141	15
Hf	72	178.49	175	6.8251	2506	0.14	13.31	1.3	4876	23
Ta	73	180.9479	170	7.89	3290	0.14	16.65	1.5	5731	57
W	74	183.85	162	7.98	3695	0.13	19.25	2.4	6203	170
Au	79	196.967	136	9.2257	1337	0.128	19.3	2.6	3243	320