Supplementary Table S1: Thermodynamic data sources for major gases and solids considered at conditions of 50% condensation of the elements of interest from a solar gas at 10^{-4} bar. Additional solids and gases considered were those included by Wood and Hashimoto (1993) in the PHEQ database.

Element	Gaseous species	Solid phases
H	H_2, H_2O, H, HO_2, HCO, H_2CO, H_2O_2, H_2S, HCl, HF [1]	
He	-	
Li	Li, LiCl [4]	Li_2SiO_3, Li_4SiO_4 [4]
Be	Be, BeCl, $BeCl_2$, BeOH, $Be(OH)_2$ [4]	BeO [4]
B	B, BCl, BOCl, B_2O_3, BCl, BCl_2, BCl_3 [4]	B_2O_3 [4]
C	C, CH, CH_2, CH_3, CH_4, CO, CO_2, C_2H, C_2H_2, C_2O, CS, CS_2 [1]	
N	NS, N_2, NH, NH_2, NH_3 [4]	
O	O, O_2, OH, OAlH, OAlOH [1]	
F	SiF, CaF, ClF, F, F_2, HF [4]	CaF2 [4]; Ca5P3O12F [24] [15]*
Ne	-	
Na	Na, NaC, NaO, Na_2, NaH, NaOH [1]	NaCl [4]; Na4Al3Si3O12Cl [23] [11]; NaAlSi3O8 [4]
Mg	Mg, MgO, Mg_2, $Mg(OH)_2$, MgH, MgOH, MgS [1]	Mg_2SiO_4, $Mg_2Si_2O_6$, $MgAl_2O_4$ [1]
Al	Al, Al_2O, Al_2O_2, AlH, AlOH, AlO, AlO_2, Al_2, AlC, AlS [1]; Al_2O_3, $Al(OH)_2$ [2]; $Al(OH)_3$ [3]	Al2O3 [1]; CaAl12O19 [18]
Si	SiO, Si, SiO_2, SiH_4, SiH, SiS, Si_2 [1]; $Si(OH)_4$ [3]	Si, SiO_2 (Crs), SiO_2 (Qz) [1]
P	PH, PN, PH3 [5]; PS [6]; P, P2, P4, PO [4]	Ni3P [4]; Fe3P [10]; Ca5P3O12OH [9] [15]*; Ca5P3O12F [24] [15]*
S	S, SiS, S_2, SH, SO, S_2O, SO_2, SO_3 [1]	FeS, Fe0.875S [20], NiS [4]
Cl	SiCl, CaCl, NiCl, KCl, NaCl, HCl, Cl, Cl_2, Cl_2O [4]	Na4Al3Si3O12Cl [23] [11]; NaCl, KCl [4]; Ca5P3O12Cl [11] [13]
Ar	-	
K	K, KCl [4]	KCl, KAlSi3O8 [4]; KMg3AlSi3O10(OH)2 [21]
Ca	Ca, CaOH, $Ca(OH)_2$, CaO, CaS, Ca_2 [1]	CaAl2Si2O6, CaMgSi2O6, Ca2Al2SiO7, Ca2MgSi2O7 [15]; CaFeSi2O6 [19]
Sc	Sc [4]; ScO [8]	Sc_2O_3 [4]
Ti	Ti, TiO [4]	Ti, Ti_2O_3, TiO_2, $CaTiO_3$ [4]
V	V, VO, VO_2 [4]	V, V_2O_3 [4]
Cr	Cr [4]; CrO [8]	Cr, $MgCr_2O_4$, $FeCr_2O_4$ [4]
Mn	Mn [4]; MnO [8]	Mn, Mn_2SiO_3, $MnSiO_3$ [4]
Fe	Fe, $Fe(OH)_2$, FeO, FeS [1]	Fe2SiO4 [15]; Fe [1]; FeCr2O4 [4]; Fe3P [10]; FeAl2O, FeSiO3 [19]
Co	Co, CoCl [4]	Co [4]
Ni	Ni, NiCl [4]	Ni, NiS, Ni_3P, Ni_2SiO_4 [4]
Cu	Cu, CuCl, CuS, CuO [4]	Cu [4]
Zn	Zn, ZnS, $ZnCl_2$ [4]	Zn, $ZnSiO_3$, Zn_2SiO_4, ZnS [4]
Ga	Ga, GaCl, GaF, GaO [4]; GaOH [12]	Ga, Ga_2O_3 [4]
Ge	Ge, GeO, GeS [4]	Ge [4]
As	As, AsS, As_2 [4]	As [4]
Se	Se, Se_2, H_2Se [4]	$FeSe_{0.96}$ [4]
Br	Br, Br_2, HBr, KBr, NaBr [4]	NaBr, KBr [4]; Ca5P3O12Br [9]
Kr	-	
Rb	Rb, RbCl [4]	Rb_2O [4]**

Sr	Sr [4]; SrO [8]; SrS [1]	SrO, $SrTiO_3$ [4]
Y	Y [4]; YO [8]	Y_2O_3 [4]
Zr	Zr, ZrO, ZrO_2 [4]	ZrO_2 [4]
Nb	Nb [4], NbO [8]	NbO, NbO_2, Nb_2O_5 [4]
Mo	Mo, MoO, MoO_2 [4]	Mo, MoO_2 [4]
Ru	Ru [4]	Ru [4]
Rh	Rh [4]	Rh [4]
Pd	Pd [4]	Pd [4]
Ag	Ag, AgCl [4]	Ag, Ag_2S [4]
Cd	Cd, CdO, CdS [4]	CdS, $CdSiO_3$ [4]
In	In, InS, InCl [4]; InOH [16]	In, InS, In_2S_3 [4]
Sn	Sn, SnS,SnCl [4]	Sn, SnS [4]
Sb	Sb, Sb2, Sb4, SbCl, SbO [4]; SbS [14]	Sb [4]; Sb2S3 [15][4]*
Te	Te, Te_2, H_2Te [4]	$FeTe_{0.9}$ [4]
I	I, I_2, HI [4]	NaI, KI [4]
Xe	-	
Cs	Cs, CsCl [4]	Cs_2O [4]**
Ba	Ba [4]; BaO [8]; BaS [1]	$BaTiO_3$ [4]
La	La [4]; LaO [7]	La_2O_3 [4]
Ce	Ce [4]; CeO, CeO2 [7]	Ce_2O_3, CeO_2 [4]
Pr	Pr [4]; PrO [7]	Pr_2O_3 [4]
Nd	Nd [4]; NdO [7]	Nd_2O_3 [4]
Sm	Sm [4], SmO [7]	Sm_2O_3 [4]
Eu	Eu [4]; EuO [7]	EuO [7]; Eu2O3 [4]
Gd	Gd [4]; GdO [7]	Gd_2O_3 [4]
Tb	Tb [4]; TbO [7]	Tb_2O_3 [4]
Dy	Dy [4]; DyO [7]	Dy_2O_3 [4]
Ho	Ho [4]; HoO [7]	Ho2O3 [7]
Er	Er [4]; ErO [7]	Er_2O_3 [4]
Tm	Tm [4]; TmO [7]	Tm_2O_3 [4]
Yb	Yb [4]; YbO [7]	Yb_2O_3 [4]
Lu	Lu [4]; LuO [7]	Lu_2O_3 [4]
Hf	Hf [4]; HfO [8]	HfO_2 [4]
Ta	Ta, TaO, TaO_2 [4]	Ta_2O_5 [4]
W	W, WO, WO_2 [4]	W [4]
Re	Re [4]	Re [4]
Os	Os [4]	Os [4]
Ir	Ir [4]	Ir [4]
Pt	Pt [4]	Pt [4]
Au	Au, AuS [4]	Au [4]
Hg	Hg, HgS [17]	HgS [17]***
Tl	Tl, TlCl [4]; Tl2S [22]	Tl, Tl_2S [4]
Pb	Pb, PbS [4]	Pb, PbS [4]
Bi	Bi, Bi_2 [4]	Bi, Bi_2S_3 [4]
Th	Th [4]; ThO, ThO2 [7]	ThO_2 [4]
U	U [4]; UO, UO2 [7]	UO_2 [4]

* Enthalpy from first reference. Heat capacity and entropy from second.

** Feldspar modelled on Sanidine and G differences between metal oxide and K_2O

***By 1/T extrapolation of Knudsen-cell mass spectrometric measurements

[1] JANAF, Chase et al. (1985); [2] Glushko et al (1978); [3] Hashimoto (1992); [4] Barin et al. (1989); [5] Lodders (1999); [6] Lodders (2004); [7] Konings et al. (2014); [8] Pedley and Marshall (1983); [9] Cruz et al. (2005); [10] Zaitsev et al. (1995); [11] This work - see text; [12] Battat et al. (1974); [13] Drouet (2015); [14] Hino et al. (1986); [15] Robie et al. (1978); [16] Skulan et al. (2006); [17] Ferro et al. (1989); [18] Kumar and Kay (1985); [19] Wood and Hashimoto (1993); [20] Grønvold and Stølen (1992); [21] Mel'chakova et al. (2004); [22] Knacke et al. (1991); [23] Komada et al. (1995); [24] Hovis and Harlov (2010)