

WARNINGS: 1) The Holland & Powell thermodynamic data herein has been augmented by data for the Ghiorso et al. (2002, G3) pMELTS model. These data are not necessarily consistent and results obtained using the mixed data sources should be viewed with caution. The Ghiorso et al data consists of the following melt (liquid) endmembers:

Name	Composition
qGL	Si4O8
coGL	Al4O6
faGL	Fe2SiO4
foGL	Mg2SiO4
woGL	Ca2Si2O6
nasGL	NaSi1/2O3/2
kalGL	KAlSiO4
h2oGL	H2O

Notation for independent endmembers (not alphabetical!)

See make definitions in the data file header for endmembers not listed here

Entity	Symbol	Formula
akermanite	ak	Ca2MgSi2O7
almandine	alm	Fe3Al2Si3O12
andalusite	and	Al2SiO5
andradite	andr	Ca3Fe2Si3O12
clinohumite	chum	Mg9Si4O16(OH)2
clinozoisite	cz	Ca2Al3Si3O12(OH)
cordierite	crd	Mg2Al4Si5O18
epidote(ordered)	ep	Ca2FeAl2Si3O12(OH)
fayalite	fa	Fe2SiO4
Fe-chloritoid	fctd	FeAl2SiO5(OH)2
Fe-cordierite	fcrd	Fe2Al4Si5O18
Fe-epidote	fep	Ca2Fe2AlSi3O12(OH)
Fe-osumilite	fosm	KFe2Al5Si10O30
Fe-staurolite	fst	Fe4Al18Si7.5O48H4
forsterite	fo	Mg2SiO4
gehlenite	geh	Ca2Al2SiO7
grossular	gr	Ca3Al2Si3O12
hydrous cordierite	hcrd	Mg2Al4Si5O18H2O
hydroxy-topaz	tpz	Al2SiO4(OH)2
kyanite	ky	Al2SiO5
larnite-bredigite	larn	Ca2SiO4
lawsonite	law	CaAl2Si2O7(OH)2H2O
merwinite	merw	Ca3MgSi2O8
Mg-chloritoid	mctd	MgAl2SiO5(OH)2
Mg-staurolite	mst	Mg4Al18Si7.5O48H4
Mn-chloritoid	mnctd	MnAl2SiO5(OH)2
Mn-cordierite	mncrd	Mn2Al4Si5O18
Mn-staurolite	mnst	Mn4Al18Si7.5O48H4
monticellite	mont	CaMgSiO4
osumilite(1)	osm1	KMg2Al5Si10O30
osumilite(2)	osm2	KMg3Al3Si11O30
phase A	phA	Mg7Si2O8(OH)6

pumpellyite	pump	Ca ₄ MgAl ₅ Si ₆ O ₂₁ (OH) ₇
pyrope	py	Mg ₃ Al ₂ Si ₃ O ₁₂
rankinite	rnk	Ca ₃ Si ₂ O ₇
sillimanite	sill	Al ₂ SiO ₅
spessartine	spss	Mn ₃ Al ₂ Si ₃ O ₁₂
sphene	sph	CaTiSiO ₅
spurrite	spu	Ca ₅ Si ₂ O ₈ (CO ₃)
tephroite	teph	Mn ₂ SiO ₄
tilleyite	ty	Ca ₅ Si ₂ O ₇ (CO ₃) ₂
vesuvianite	vsv	Ca ₁₉ Mg ₂ Al ₁₁ Si ₁₈ O ₆₉ (OH) ₉
zircon	zrc	ZrSiO ₄
zoisite	zo	Ca ₂ Al ₃ Si ₃ O ₁₂ (OH)
acmite	acm	NaFeSi ₂ O ₆
Ca-tschermaks pyroxene	cats	CaAl ₂ SiO ₆
Diopside	di	CaMgSi ₂ O ₆
enstatite	en	Mg ₂ Si ₂ O ₆
ferrosilite	fs	Fe ₂ Si ₂ O ₆
hedenbergite	hed	CaFeSi ₂ O ₆
jadeite	jd	NaAlSi ₂ O ₆
mg-tschermak	mgts	MgAl ₂ SiO ₆
pseudowollastonite	pswo	CaSiO ₃
pyroxmangite	pxmn	MnSiO ₃
rhodonite	rhod	MnSiO ₃
wollastonite	wo	CaSiO ₃
anthophyllite	anth	Mg ₇ Si ₈ O ₂₂ (OH) ₂
cummingtonite	cumm	Mg ₇ Si ₈ O ₂₂ (OH) ₂
Fe-anthophyllite	fanth	Fe ₇ Si ₈ O ₂₂ (OH) ₂
Fe-glaucophane	fgl	Na ₂ Fe ₃ Al ₂ Si ₈ O ₂₂ (OH) ₂
ferroactinolite	ftr	Ca ₂ Fe ₅ Si ₈ O ₂₂ (OH) ₂
gedrite(Na-free)	ged	Mg ₅ Al ₄ Si ₆ O ₂₂ (OH) ₂
glaucophane	gl	Na ₂ Mg ₃ Al ₂ Si ₈ O ₂₂ (OH) ₂
grunerite	grun	Fe ₇ Si ₈ O ₂₂ (OH) ₂
pargasite	parg	NaCa ₂ Mg ₄ Al ₃ Si ₆ O ₂₂ (OH) ₂
riebeckite	rieb	Na ₂ Fe ₅ Si ₈ O ₂₂ (OH) ₂
tremolite	tr	Ca ₂ Mg ₅ Si ₈ O ₂₂ (OH) ₂
tschermakite	ts	Ca ₂ Mg ₃ Al ₄ Si ₆ O ₂₂ (OH) ₂
deerite	deer	Fe ₁₈ Si ₁₂ O ₄₀ (OH) ₁₀
fe-carpholite	fcar	FeAl ₂ Si ₂ O ₆ (OH) ₄
fe-sapphirine(793)	fspr	Fe _{3.5} Al ₉ Si _{1.5} O ₂₀
mg-carpholite	mcar	MgAl ₂ Si ₂ O ₆ (OH) ₄
sapphirine(442)	spr4	Mg ₄ Al ₈ Si ₂ O ₂₀
sapphirine(793)	spr7	Mg _{3.5} Al ₉ Si _{1.5} O ₂₀
annite	ann	KFe ₃ AlSi ₃ O ₁₀ (OH) ₂
celadonite	cel	KMgAlSi ₄ O ₁₀ (OH) ₂
eastonite	east	KMg ₂ Al ₃ Si ₂ O ₁₀ (OH) ₂
Fe-celadonite	fcel	KFeAlSi ₄ O ₁₀ (OH) ₂
margarite	ma	CaAl ₄ Si ₂ O ₁₀ (OH) ₂
Mn-biotite	mnbi	KMn ₃ AlSi ₃ O ₁₀ (OH) ₂
muscovite	mu	KAl ₃ Si ₃ O ₁₀ (OH) ₂
Na-phlogopite	naph	NaMg ₃ AlSi ₃ O ₁₀ (OH) ₂
paragonite	pa	NaAl ₃ Si ₃ O ₁₀ (OH) ₂
phlogopite	phl	KMg ₃ AlSi ₃ O ₁₀ (OH) ₂
Al-free chlorite	afchl	Mg ₆ Si ₄ O ₁₀ (OH) ₈
amesite(14Ang)	ames	Mg ₄ Al ₄ Si ₂ O ₁₀ (OH) ₈
clinochlore(ordered)	clin	Mg ₅ Al ₂ Si ₃ O ₁₀ (OH) ₈
daphnite	daph	Fe ₅ Al ₂ Si ₃ O ₁₀ (OH) ₈
Fe-sudoite	fsud	Fe ₂ Al ₄ Si ₃ O ₁₀ (OH) ₈
Mn-chlorite	mnchl	Mn ₅ Al ₂ Si ₃ O ₁₀ (OH) ₈
Sudoite	sud	Mg ₂ Al ₄ Si ₃ O ₁₀ (OH) ₈
antigorite	atg	Mg ₄₈ Si ₃₄ O ₈₅ (OH) ₆₂

chrysotile	chr	Mg3Si2O5(OH)2
Fe-talc	fta	Fe3Si4O10(OH)2
Kaolinite	kao	Al2Si2O5(OH)4
prehnite	pre	Ca2Al2Si3O10(OH)2
pyrophyllite	prl	Al2Si4O10(OH)2
talc	ta	Mg3Si4O10(OH)2
tschermak-talc	tats	Mg2Al2Si3O10(OH)2
albite	ab	NaAlSi3O8
analcite	anl	NaAlSi2O6H2O
anorthite	an	CaAl2Si2O8
coesite	coe	SiO2
cristobalite	crst	SiO2
heulandite	heu	CaAl2Si7O186H2O
highalbite	abh	NaAlSi3O8
kalsilite	kals	KAlSiO4
laumontite	lmt	CaAl2Si4O124H2O
leucite	lc	KAlSi2O6
meionite	me	Ca4Al6Si6O24(CO3)
microcline	mic	KAlSi3O8
nepheline	ne	NaAlSiO4
quartz	q	SiO2
sanidine	san	KAlSi3O8
stilbite	stlb	CaAl2Si7O187H2O
stishovite	stv	SiO2
tridymite	trd	SiO2
wairakite	wrk	CaAl2Si4O12H2O3
baddeleyite	bdy	ZrO2
corundum	cor	Al2O3
geikielite	geik	MgTiO3
hematite	hem	Fe2O3
hercynite	herc	FeAl2O4
ilmenite	ilm	FeTiO3
lime	lime	CaO
magnesioferrite	mft	MgFe2O4
magnetite	mt	Fe3O4
manganosite	mang	MnO
nickel	oxide	NiO
periclase	per	MgO
pyrophanite	pnt	MnTiO3
rutile	ru	TiO2
spinel	sp	MgAl2O4
ulvospinel	usp	Fe2TiO4
brucite	br	Mg(OH)2
diaspore	dsp	AlO(OH)
goethite	gth	FeO(OH)
ankerite	ank	CaFe(CO3)2
aragonite	arag	CaCO3
calcite	cc	CaCO3
dolomite	dol	CaMg(CO3)2
magnesite	mag	MgCO3
rhodochrosite	rhc	MnCO3
siderite	sid	FeCO3
diamond	diam	C
graphite	gph	C
iron	iron	Fe
nickel	Ni	Ni
carbon dioxide	CO2	
carbon monoxide	CO	
hydrogen	H2	
methane	CH4	

oxygen	O2	
water fluid	H2O	
albite liquid	abL	NaAlSi3O8
anorthite liquid	anL	CaAl2Si2O8
diopside liquid	diL	CaMgSi2O6
enstatite liquid	enL	Mg2Si2O6
fayalite liquid	faL	Fe2SiO4
Fe-liquid (in KFMASH)	fliq	K3Fe0:5Al4Si19:5O47
Forsterite liquid	foL	Mg2SiO4
H2O liquid	h2oL	H2O
H2O liquid (in KFMASH)	hliq	H2O
K-feldspar liquid	kspL	KAlSi3O8
Mg liquid (in KFMASH)	mliq	K3Mg0:5Al4Si19:5O47
Silica liquid	qL	SiO2
Sillimanite liquid	sill	Al2SiO5
H+(aq)	H+	
Cl(aq)	Cl-	
OH(aq)	OH-	
Na+(aq)	Na+	
K+(aq)	K+	
Ca2+(aq)	Ca++	
Mg2+(aq)	Mg++	
Fe2+(aq)	Fe++	
Al3+(aq)	Al+++	
CO3--(aq)	CO3	
Al(OH)3(aq)	AlOH3	
Al(OH)4----(aq)	AlOH4-	
KOH(aq)	KOH	
HCl(aq)	HCL	
KCl(aq)	KCL	
NaCl(aq)	NaCl	
CaCl(aq)	CaCl2	
CaCl+(aq)	CaCl+	
MgCl2(aq)	MgCl2	
MgCl+(aq)	MgCl	
FeCl(aq)	FeCl2	
Aqueous silica	aqSi	SiO2