Multi-element standards

The tables show the complete list of certified pure element and compound standards from which the user may select the most appropriate combination to suit their application. Alloy standards are also available.

Individual or multi element reference standards can be chosen from the selection of pure elements, compounds, REE glass, minerals, and metals, listed in the following tables.

Pure elements

Ag	Silver	In	Indium	Se	Selenium
Al	Aluminium	Ir	Iridium	Si	Silicon
As	Arsenic	Mg	Magnesium	Sn	Tin
Au	Gold	Mn	Manganese	Ta	Tantalum
B	Boron	Mo	Molybdenum	Tb	Terbium
Be	Beryllium	Nb	Niobium	Te	Tellurium
Bi	Bismuth	Nd	Neodymium	Ti	Titanium
C	Carbon	Ni	Nickel	Tl	Thallium
Cd	Cadmium	Os	Osmium	Tm	Thulium
Co	Cobalt	Pb	Lead	V	Vanadium
Cr	Chromium	Pd	Palladium	W	Tungsten
Cu	Copper	Pt	Platinum	Y	Yttrium
Dy	Dysprosium	Re	Rhenium	Yb	Ytterbium
Fe	Iron	Rh	Rhodium	Zn	Zinc
Gd	Gadolinium	Ru	Ruthenium	Zr	Zirconium
Ge	Germanium	Sb	Antimony		
Hf	Hafnium	Sc	Scandium		

REE glass standards

Ba	Barium REE glass	K	Potassium REE glass	Sr	Strontium REE glass
Ce	Cerium REE glass	La	Lanthanum REE glass	Tb	Terbium REE glass
Ce, Eu, Ho, Tm	REE glass 4 % each	La, Sm, Gd, Yb	REE glass 4 % each	Th	Thorium REE glass
Cs	Cesium REE glass	Lu	Lutetium REE glass	Tm	Thulium REE glass
Dy	Dysprosium REE glass	Nd	Neodymium REE glass	U	Uranium REE glass
Er	Erbium REE glass	Nd, Th, Lu	REE glass 4 % each	Y	Yttrium REE glass
Eu	Europium REE glass	Pr	Praseodymium REE glass	Y, Pr, Dy, Er	REE glass 4 % each
Gd	Gadolinium REE glass	Rb	Rubidium REE glass	Yb	Ytterbium REE glass
Ho	Holmium REE glass	Sm	Samarium REE glass		Glass blank

Multi-element standards

Compound standards

Ag_2Te_3	Silver telluride	Gd_2O_3	Gadolinium(III) oxide	PbO	Lead oxide
AgCl	Silver(I) chloride	GdF_3	Gadolinium(III) fluoride	PbS	Lead sulphide
AgS_2	Silver sulphide	GeO_2	Germanium(IV) oxide	PbSe	Lead selenide
Al_2O_3	Aluminium oxide	HfO_2	Hafnium oxide	PbTe	Lead telluride
AlF_3	Aluminium fluoride	HgS	Mercury sulphide (black)	PrF_3	Praseodymium fluoride
AlN	Aluminium nitride	HgTe	Mercury telluride	PTFE	Polytetrafluoroethylene
AlSb	Aluminium antimonide	HoF_3	Holmium fluoride	RbBr	Rubidium bromide
B_2O_3	Boron trioxide	In_2Se_3	Indium selenide	RbI	Rubidium iodide
B_4C	Boron carbide	In_2Te_3	Indium telleride	Sb_2S_3	Antimony sulphide (stibnite)
BaF_2	Barium fluoride	InAs	Indium arsenide	Si_3N_4	Silicon nitride
$BaTiO_3$	Barium titanite	InP	Indium phosphide	SiC	Silicon carbide
Bi_2O_3	Bismuth oxide	InS	Indium sulphide	SiO_2	Silicon(IV) oxide
Bi_2Se_3	Bismuth selenide	InSb	Indium antimonide	Sm_2O_3	Samarium oxide
Bi_2Te_3	Bismuth telluride	KBr	Potassium bromide	SmF_3	Samarium fluoride
BN	Boron nitride	KCl	Potassium chloride	Sn	Tin wire
$CaMoO_4$	Calcium molybdate	La_2O_3	Lanthanum(III) oxide	SnO_2	Tin(IV) oxide
$CaTiO_3$	Calcium titanium oxide	LaB_6	Lanthanum hexaboride	SrF_2	Strontium fluoride
$CaWO_4$	Calcium tungstate	LaF_3	Lanthanum(III) fluoride	$SrTiO_3$	Strontium titanite
CdS	Cadmium sulphide	$LiNbO_3$	Lithium niobate	Ta_2O_5	Tantalum pentoxide
CdSe	Cadmium selenide	$LiTaO_3$	Lithium tantalate	TaN	Tantalum nitride
CdTe	Cadmium telluride	LiF	Lithium fluoride	$TaSi_2$	Tantalum silicide
$CeAl_2$	Cerium alumate	LuF_3	Lutetium fluoride	TbF_3	Terbium fluoride
CeF_3	Cerium(III) fluoride	$LuSi_2$	Lutetium silicide	$TbSi_2$	Terbium silicide
CeO_2	Cerium(IV) oxide	Mg_2Sn	Magnesium tin alloy	TeO_2	Tellurium(IV) oxide
Co_3O_4	Cobalt(II, III) oxide	MgF_2	Magnesium fluoride	ThO_2	Thorium oxide
$Cr_{23}C_6$	Chromium carbide	MgO	Periclase (magnesium oxide)	TiC	Titanium carbide
Cr_2O_3	Chromium oxide C-1100	$MgOAl_2O_4$	Spinel	TiN	Titanium nitride
Cr_3C_2	Chromium carbide	$Mn_{15}Si_{26}$	Manganese silicide	TiO	Titanium monoxide
CrN	Chromium(III) nitride	$MnCO_3$	Manganese carbonate	TiO_2	Titanium(IV) oxide
CsBr	Cesium bromide	MnF_2	Manganese fluoride	$TiSi_2$	Titanium(IV) sulfide
CsI	Cesium iodide	MnO_2	Manganese(IV) oxide	TlBr	Thallium(I) bromide
CuI	Copper iodide (powder)	MnS	Manganese sulfide	TlI	Thallium(I) iodide
CuO	Copper(II) oxide	$MnTiO_3$	Manganese(II) titanate oxide	TmF_3	Thulium fluoride
CuS	Copper(II) sulphide	Mo_2C	Molybdenum carbide	$TmSi_2$	Thulium silicide
$CuSO_4$	Copper(II) sulphate	MoO_3	Molybdenum(VI) oxide	V_2O_5	Vanadium oxide
DyF_3	Dysprosium fluoride	MoS_2	Molybdenum(IV) sulphide	VC	Vanadium carbide
ErF_3	Erbium fluoride	Na_3AlF	Cryolite	WC	Tungsten carbide
Eu_2O_3	Europium(III) oxide	NaCl	Sodium chloride	WSi_2	Tungsten silicide
EuF_3	Europium(III) fluoride	NaF	Sodium fluoride	Y_2O_3	Yttrium oxide
Fe_2P	Iron phosphide	Nb_2O_3	Niobium oxide	YbF_3	Ytterbium fluoride
FeO	Iron ferrous oxide	Nb_2O_5	Niobium(V) oxide	ZnO	Zinc oxide
FeS	Iron(II) sulphide	Nd_2O_3	Neodymium oxide	ZnS	Zinc sulphide
$FeSi_2$	Iron silicide	NdF_3	Neodymium fluoride	ZnSe	Zinc selenide
Ga_2Se_3	Gallium selenide	Ni_2Si	Nickel silicide	ZnTe	Zinc telluride
GaAs	Gallium arsenide	NiAs	Nickel arsenide	ZrB_2	Zirconium boride
GaN	Gallium nitride	NiO	Nickel oxide	ZrC	Zirconium carbide
GaP	Gallium phosphide	NiP	Nickel phosphide	ZrN	Zirconium nitride
GaS	Gallium sulphide	$NiSO_4$	Nickel sulphate	ZrO_2	Zirconium oxide
GaSb	Gallium antimonide	PbF_2	Lead fluoride		

Multi-element standards

Mineral standards

Ag_3AsS_3	Proustite
AgI	Iodargyrite
Al_2SiO_5	Kyanite
$AlSi_2O_6$	Pollucite
$Al_2Si_2O_5(OH)_4$	Kaolinite powder
$Ba(Al_2Si_2O_8)$	Celsian
$BaSO_4$	Baryte
$BaSO_4$	Baryte (Shropshire)
$BaSO_4$	Baryte 2 (Cumbria)
$BaTiS_3O_9$	Benitoite
$Be_3Al_2Si_6O_{18}$	Beryl
Bi_2S_3	Bismuthinite
C	Diamond
$(Ca)_{0.33}(Al,Mg)_2Si_4O_{10}(OH)_2.nH_2O$	Ca - Montmorillonite
$Ca_3Al_2(SiO_4)_3$	Grossular
$CaAl_2Si_2O_8$	Anorthite
$CaCO_3$	Calcite
CaF_2	Fluorite
$Ca_3Fe_2(SiO_4)_3$	Andradite
$CaMg(CO_3)_2$	Dolomite
$Ca_2(Mg, Fe, Al)_5 (Al, Si)_8O_{22}(OH)_2$	Hornblend(e)
$(Ca,Mg,Fe)_2(SiAl)_2O_6$	Augite
$Ca(Mg,Fe)Si_2O_8$	Diopside
$CaMgSiO_4$	Monticellitite + intergrown calcite
$Ca_2Mg_5Si_8O_{22}(OH)_2$	Tremolite
$(Ca,Na)(Si,Al)_4O_8$	Labradorite
$Ca_5(PO_4)_3F$	Fluorapatite
$Ca_5(PO_4)_3(F,Cl,OH)$	Apatite 2
$Ca_{10}(PO_4)_6(OH)_2$	Hydroxyapatite
$CaSiO_3$	Wollastonite
$CaSO_4$	Anhydradite
$CaTiSiO_5$	Sphene (titanite)
$CaWO_4$	Scheelite
CoAsS	Cobaltite
$(Co,Ni)As_3$	Skutterudite
$CuFeS_2$	Chalcopyrite
Cu_2O	Cuprite
$Cu_2(OH)_2CO_3$	Malachite
$Cu_3(OH)_2(CO_3)_2$	Azurite
Cu_2S	Chalcocite
$(Fe_5Al)(AlSi_3)O_{10}(OH)_8$	Chlorite (chamosite)
$Fe_3Al_2Si_3O_{12}$	Almandine garnet (magnesium rich)
$Fe_3Al_2Si_3O_{12}$	Almandine garnet (iron rich)
$FeCO_3$	Siderite
$FeCrO_4$	Chromite
Fe_2O_3	Iron oxide (haematite)
Fe_3O_4	Magnetite
FeS_2	Pyrite
FeS_2	Marcasite
$FeTiO_3$	Ilmenite
$Gd_3Ga_5O_{12}$	Gadolinium gallium garnet
$K[AlSi_3O_8]$	Sanidine
$(K,H_3O)(Al,Mg,Fe)_2(Si,Al)_4O_{10}[(OH)_2,(H_2O)]$	Illite powder
$K(Mg,Fe,Mn)_3Si_3AlO_{10}$	Phlogopite
$K(Mg,Fe)_3(Si_3Al)O_{10}(OH,F)_2$	Biotite
$KAl_2(AlSi_3O_{10})$	Muscovite
$KAlSi_3O_6$	Microcline
$KAlSi_3O_8$	Orthoclase
$LiAlSiO_6$	Spodumene
$Mg_3Al_2(SiO_4)_{33}$	Pyrope garnet (red)
$MgCaSi_2O_6$	Chrome diopside
$MgCO_3$	Magnesite
$(Mg,Fe)_2SiO_4$	Olivine
$Mg_6(OH)_8(Si_4O_{10})$	Serpentine
Mg_2SiO_4	Forsterite
$Mn_3Al_2Si_3O_{12}$	Garnet spessartine
MnCaMgO	Rodocrosite
$(Mn,Ca)_3Si_3O_9$	Bustamite
$(Mn,Fe^{2+})(Nb,Ta)_2O_6$	Columbite
$Mn(II)_3Al_2(SiO_4)_3$	Spessartine
$MnSiO_3$	Rhodonite
MoS_2	Molybdenite
$Na_4AlBe(Si_4O_{12})Cl$	Tugtupite
$(Na)_{0.33}(Al,Mg)_2Si_4O_{10}(OH)_2.nH_2O$	Na - Montmorillonite powder
$NaAl(Si_2O_6)$	Jadeite
$NaAlSi_3O_8$	Albite
$Na_4Al_3(SiO_4)_3Cl$	Sodalite
$NaAlSi_2O_6 \cdot H_2O$	Analcime
$Na_2Ca_2Al_6Si_9O_{30} \cdot 8(H_2O)$	Mesolite
$NaCa_2(Mg_4Ti)Si_6Al_2O_{23}(OH)_2$	Kaersutite
NiS	Millerite (nickel sulphide)
$PbCrO_4$	Crocoite powder
$Pb_5(PO_4)_3Cl$	Pyromorphite
PbS	Galena
$Pb_5(VO_4)_3Cl$	Vanadinite
Sb_2O_3	Valentinite (antimony oxide)
Sb_2S_3	Stibnite
SiO_2	Obsidian
SiTiAlFeMgCaNaKO	Kaersutite KK1 - 15
SnO_2	Cassiterite (tin oxide)
$SrCO_3$	Strontianite
$SrSO_4$	Celestine
$Y_3Al_5O_{12}$	Yttrium aluminium garnet (YAG)
YPO_4	Xenotime
$ZnAl_2O_4$	Gahnite (zinc aluminium oxide)
$ZnAl_2O_4$	Gahnite, dry gulch
ZnS	Sphalerite
Zn_2SiO_4	Willemite
$ZrSiO_4$	Zircon
$ZrSiO_4$	Cubic zirconia