

Physical properties of coating materials

Material name	Chemical formula	Density(g/cm ³)	Melting point(C)	Evaporation temp(C)	Refractive index at 500nm	Evaporation source
Aluminum oxide	Al ₂ O ₃	4.0	2015	2400~2500	1.64	E
Antimony oxide	Sb ₂ O ₃	5.2	656	460~520	2.1	E, W
Bismuth oxide	Bi ₂ O ₃	8.9	820	—	1.9	E, W, Ta
Cerium oxide	CeO ₂	7.3	1950	1850~2000	2.13	E, W
Chromium oxide	Cr ₂ O ₃	5.2	1990	1400~1700	—	E, W
Europium oxide	Eu ₂ O ₃	7.4	2100	1765~1950	1.9	E, W
Germanium oxide	GeO ₂	5.3	936	—	—	E
Hafnium oxide	HfO ₂	9.7	2758	2750~2900	2.06	E
Indium oxide	In ₂ O ₃	6.5	2260	1875~2132	1.9	E, W, Ta
Iron oxide	Fe ₂ O ₃	5.3	1594	—	—	E, W
Lanthanum oxide	La ₂ O ₃	7.2	2200	—	2.0	E, W, Ta
Lead oxide	PbO	9.5	890	740~820	—	W
Magnesium oxide	MgO	3.6	2850	2800~3200	1.74	E, W
Molybdenum oxide	MoO ₃	4.7	795	590~655	1.9	Mo
Neodymium oxide	Nd ₂ O ₃	4.5	1520	1800~1860	2.15	E, W
Niobium oxide	Nb ₂ O ₅	4.5	1520	—	2.37	E
Praseodymium oxide	Pr ₆ O ₁₁	7.1	2270	2000~2250	1.93	E, W
Samarium oxide	Sm ₂ O ₃	7.1	2325	1950~2200	1.9	E, W
Scandium oxide	Sc ₂ O ₃	3.9	2400	—	1.9	E, W
Silicon oxide (Silicon monoxide)	SiO	2.1	1705	1080~1180	1.7~2.0	E, Mo, Ta
Silicon oxide (Silicon dioxide)	SiO ₂	2.2	1700	1600~1700	1.47	E
Tantalum oxide	Ta ₂ O ₅	8.3	1470	—	2.20	E, W
Tin oxide	SnO ₂	6.9	1127	570~680	2.00	Mo, Ta
Titanium oxide (Titanium monoxide)	TiO	4.9	1750	1800~2000	2.35	E, W
Titanium oxide (Titanium trioxide)	Ti ₂ O ₃	4.6	2130	2400~2500	2.33	E, W
Titanium oxide (Titanium dioxide)	TiO ₂	4.9	1640	1800~2200	2.35	E
Tungsten oxide	WO ₃	12.1	1750	—	1.68	E, W
Ytterbium oxide	Yb ₂ O ₃	9.1	—	—	1.93	E, W
Yttrium oxide	Y ₂ O ₃	5.0	2410	2300~2600	1.81	E
Zinc oxide	ZnO	5.6	1725	—	2.1	E

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Zirconium oxide	ZrO ₂	5.5	2700	2700~2850	2.07	E, W
I.T.O (Indium oxide)	In ₂ O ₃ +SnO ₂	—	2200	—	1.99	E, W, Ta
OH-5	ZrO ₂ +TiO ₂	—	—	2550~2650	2.18	E, W
OM-4	Al ₂ O ₃ +ZrO ₂	—	—	2400~2550	1.69	E
OM-6	Al ₂ O ₃ +ZrO ₂	—	—	2420~2660	1.75	E
OS-10 (Tetra-titanium heptoxide)	Ti ₄ O ₇	4.0	1800	2400~2500	2.33	E, W
OS-50 (Trititanium pentoxide)	Ti ₃ O ₅	4.0	1800	2400~2450	2.31	E, W
Aluminium fluoride	AlF ₃	2.9	1291	1000~1050	1.36	Mo, Ta
Barium fluoride	BaF ₂	4.8	1280	1300~1350	1.48	E, W, Mo, Ta
Calcium fluoride	CaF ₂	3.2	1360	1400~1450	1.43	W, Mo, Ta
Cerium fluoride	CeF ₃	6.2	1430	1330~1370	1.60	E, Mo, Ta
Chiolite	Na ₅ Al ₃ F ₁₄	3.0	1027	1130~1170	1.33	E, Mo, Ta
Cryolite	Na ₃ AlF ₆	3.0	1000	900~1200	1.35	E, Mo, Ta
Lanthanum fluoride	LaF ₃	5.9	1490	1300~1350	1.59	E, Mo, Ta
Lead fluoride	PbF ₂	8.2	855	600~700	1.75	W, Mo
Lithium fluoride	LiF	2.6	870	850~870	1.36	Mo, Ta
Magnesium fluoride	MgF ₂	3.2	1396	1060~1100	1.38	E, W, Mo, Ta
Neodymium fluoride	NdF ₃	6.5	1377	1285~1320	1.60	Mo, Ta
Samarium fluoride	SmF ₃	6.6	1306	1250~1350	1.6	E, Ta
Sodium fluoride	NaF	2.6	995	830~900	1.30	W, Mo, Ta
Strontium fluoride	SrF ₂	4.2	1450	1370~1420	1.4	E, Mo, Ta
Yttrium fluoride	YF ₃	4.0	—	1250~1300	1.52	E
Zinc sulfide	ZnS	4.1	1020	1000~1200	2.39	E, Mo, Ta
Aluminum	Al	2.7	660	—	—	E, W
Germanium	Ge	5.4	960	1200~1400	4.0*	E, W

— : data not available * : at 2μm
 evaporation source E : electron beam gun, W : tungsten boat, Mo : molybdenum boat,
 Ta : tantalum boat