

Particle Refractive Index Table

The values provided below are offered in good faith based upon the references listed at the bottom of the table. For values not shown please contact the Microtrac Applications Laboratory at 888-643-5880 or Support@Microtrac.com

Compound (Synonym)	Chemical Formula	Index of Refraction
ALUMINUM	Al	NT
Boride	AlB_{12}	N/A
Boride, di-	AlB_2	N/A
Chloride	$AlCl_3 \cdot 6H_2O$ (or) Al_2Cl_6	1.56
Chloride, Hexahydrate	$AlCl_3 \cdot 6H_2O$	1.60
Fluoride	AlF_3	N/A
Fluoride	$AlF_3 \cdot 3\frac{1}{2} H_2O$	N/A
Hydroxide (Natural Boehmite)	$AlO(OH)$	N/A
Hydroxide (natural Diaspore)	$AlO(OH)$	N/A
Hydroxide	$Al(OH)_3$	N/A
Nitrate	$Al(NO_3)_3 \cdot 9H_2O$	1.54
Nitrate	AlN	N/A
Oxalate		N/A
Oxide	Al_2O_3	1.77
Oxide (Alumina - Natural Corundum)	Al_2O_3	1.77
Oxide Alumina	Al_2O_3	1.70
Oxide, Monohydrate	$(Al_2O_3 \cdot H_2O)$	1.62
Oxide, Trihydrate	$(Al_2O_3 \cdot 3H_2O)$	
(Natural Gibbsite)		1.58
(Hydraargilite)		1.60
(Natural Bayerite)		1.58
(Salicylate)	$Al(C_7H_5O_3)_3$	N/A
Selenide	Al_3Se_3	N/A
Silicate	$Al_2O_3 \cdot SiO_2$	1.66
(Natural Sillimanite, Andalusite, or Cyanite)		
Silicate	$3Al_2O_3 \cdot 2SiO_2$	1.65
AMERICIUM	Am	NT
AMMONIUM		
Acetate	$NH_4C_2H_3O_2$	N/A
Aluminum Chloride	$NH_4Cl \cdot AlCl_3$	N/A
Aluminum Sulfate	$NH_4Al(SO_4)_2$	N/A
Aluminum Sulfate Hydrate (Natural Tschernigite)	$NH_4Al(SO_4)_2 \cdot 12H_2O$	1.46
Azide	NH_4N_3	N/A
Cadmium Chloride	$4NH_4Cl \cdot CdCl_2$	1.60
Calcium Arsenate	$NH_4CaAsO_4 \cdot 6H_2O$	N/A
Calcium Phosphate	$NH_4CaPO_4 \cdot 7H_2O$	1.56
Carbonate	$(NH_4)_2CO_3 \cdot H_2O$	N/A
Carbonate, Hydrogen	NH_4HCO_3	1.42
Cerium Nitrate (ic)	$(NH_4)_2Ce(NO_3)_6$	N/A
Chlorate	NH_4ClO_3	N/A
Chloride (Sal Ammoniac)	NH_4Cl	1.64
Citrate, di (sec)	$(NH_4)_2HC_6H_5O_7$	N/A

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Compound (Synonym)	Chemical Formula	Index of Refraction
Citrate, Tri-(tert.)	$(\text{NH}_4)_3\text{C}_6\text{H}_5\text{O}_7$	N/A
Dichromate	$(\text{NH}_4)_2\text{Cr}_2\text{O}_7$	N/A
Nitrate	NH_4NO_3	1.41
Perchlorate	NH_4ClO_4	1.48
Phosphate (ortho)		1.52
Salicylate	$\text{NH}_4\text{C}_7\text{H}_5\text{O}_3$	N/A
Succinate	$(\text{NH}_4)_2\text{C}_4\text{HO}_4$	N/A
Sulfate (Natural Mascagnite)	$(\text{NH}_4)_2\text{SO}$	1.53
Sulfate, Hydrogen (Ammonium Bisulfate)	NH_4HSO_4	1.47
Sulfide, Hydro-	NH_4HS	1.74
Sulfide, Mono-	$(\text{NH}_4)_2\text{S}$	N/A
Sulfide, Penta-	$(\text{NH}_4)_2\text{S}_5$	N/A
Sulfite	$(\text{NH}_4)_2\text{SO}_3 \cdot \text{H}_2\text{O}$	1.52
Sulfite, Hydrogen (Ammonium Bisulfite)	NH_4HSO_3	N/A
Tartrate Di-	$(\text{NH}_4)_2\text{C}_4\text{H}_4\text{O}_6$	1.55
Tartrate Di-, Hydrogen	$\text{NH}_4\text{HC}_4\text{H}_4\text{O}_6$	1.56
Thiosulfate	$(\text{NH}_4)_2\text{S}_2\text{O}_3$	N/A
Zinc Sulfate	$(\text{NH}_4)_2\text{SO}_4 \cdot \text{ZnSO}_4 \cdot 6\text{H}_2\text{O}$	1.49
ANTIMONY	Sb	NT
Bromide	SbBr_3	1.74
Chloride, Penta	SbCl_5	1.60
Chloride, (Tri-butter of Antimony)	SbCl_3	N/A
Nitrate, Basic	$2\text{Sb}_2\text{O}_3 \cdot \text{N}_2\text{O}_5$	N/A
Nitride	SbN	N/A
Oxide, penta	$\text{Sb}_2\text{O}_5(\text{or}) \text{SB}_4\text{O}_{10}$	N/A
Oxide, Tetra- (Natural Cervanite)	$\text{Sb}_2\text{O}_4(\text{or})\text{Sb}_2\text{O}_3 \cdot \text{Sb}_2\text{O}_5$	2.00
Oxide, Tri- (Natural Senarmonitete)	$\text{Sb}_2\text{O}_3(\text{or})\text{Sb}_4\text{O}_4$	2.09
Oxide, Tri-(Natural Valentinite)	$\text{Sb}_2\text{O}_3(\text{Sb}_4\text{O}_6)$	2.18
Sulfide, Penta-	Sb_2S_5	N/A
Sulfide, Tri-(Natural Stibnite)	Sb_2S_3	4.06
D-Tartrate	$\text{Sb}_2(\text{C}_4\text{H}_4\text{O}_6)_3 \cdot 6\text{H}_2\text{O}$	N/A
ARSENIC	As	NT
Bromide, Tri-	AsBr_3	N/A
Iodide, Tri-	AsI_3	2.59
Others		2.23
Oxide, Tri-(Natural Arsenolite)	$\text{As}_2\text{O}_3(\text{or})\text{As}_4\text{O}_6$	1.76
Oxide, Tri-(Natural Claudetite)	$\text{As}_2\text{O}_3(\text{or})\text{As}_4\text{O}_6$	1.92
ASPARTAME		1.45
ASPHALT		1.63
BARIUM	Ba	NT
Acetate	$\text{Ba}(\text{C}_2\text{H}_3\text{O}_2)_2$	N/A
Acetate, Hydrate	$\text{Ba}(\text{C}_2\text{H}_3\text{O}_2)_2 \cdot \text{H}_2\text{O}$	1.53
Azide	$\text{Ba}(\text{N}_3)_2$	N/A
Carbonate (Natural Witherite)	BaCO_3	1.68
Chloride	BaCl_2	1.74
Citrate	$\text{Ba}_3(\text{C}_4\text{H}_5\text{O}_7)_2 \cdot 7\text{H}_2\text{O}$	N/A
Dithionate	$\text{Ba}(\text{SO}_3)_2 \cdot 2\text{H}_2\text{O}$	1.59
Fluoride	BaF_2	1.48
Formate	$\text{Ba}(\text{CHO}_2)_2$	1.60
Gluconate	$\text{Ba}(\text{C}_6\text{H}_{11}\text{O}_7)_2 \cdot 3\text{H}_2\text{O}$	N/A
Hydroxide	$\text{Ba}(\text{OH})_2 \cdot 8\text{H}_2\text{O}$	1.47
Molybdate	BaMoO_4	N/A

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Compound (Synonym)	Chemical Formula	Index of Refraction
Myristate	$Ba(C_{14}H_{27}O_2)_2$	N/A
Nitrate (Nitrobarite)	$Ba(NO_3)_2$	1.57
Nitride	Ba_3N_2	N/A
Oxide	BaO	1.98
Salicylate	$Ba(C_7H_9O_3)$	N/A
Selenate	$BaSeO_4$	N/A
Selenide	$BaSe$	2.27
Silicate (meta)	$Ba SiO_8$	1.67
Sulfate (Natural Barite)	$BaSO_4$	1.65
Sulfide, mono	BaS	2.16
Titanate	$BaTiO_3$	2.40
Tungstate	$BaWO_4$	N/A
BENTONITE		1.64
BERYLLIUM	Be	NT
Aluminate		1.75
Aluminum Silicate (Natural Beryl)	$Be_3Al_2(SiO_3)_6$	1.58
Others		1.54
Benzene Sulfonate	$Be(C_6H_5O_3S)_2$	N/A
Carbide	Be_2C	N/A
Carbonate, Basic	$BeCO_3+Be(OH)_2$	N/A
Nitride	Be_3N_2	N/A
Oxide (Natural Bromellite)	BeO	1.72
BISMUTH	Bi	NT
Dichromate, Basic	$(BiO)_2 \cdot Cr_2O_1$	N/A
Oxide, Tri	Bi_2O_3	1.90
Silicate (Natural Eulytite)	$2Bi_2O_3 \cdot 3SiO_2$	2.05
BORIC ACID	Meta HBO_2	1.62
Ortho Boracio Acid	H_3BO_3 (col)	1.33
Ortho Boracio Acid	H_3BO_3 (tricl)	1.46
BORON	B	NT
Oxide	B_2O_3	1.63
Nitride		1.74
CADMIUM	Cd	1.13
Carbonate	$CdCO_3$	N/A
Fluoride	CdF_2	1.56
Iodide	CdI_2	N/A
Oxide	CdO	2.49
Salicylate	$Cd(C_7H_5O_3)_2 \cdot H_2O$	N/A
Metasilicate	$CdSiO_3$	1.74
Sulfate, hydrate	$3CdSO_4 \cdot 8H_2O$	1.57
Sulfide (Natural Greenockite)	CdS	2.51
CALCIUM	Ca	NT
Acetate	$Ca(C_2H_3O_2)_2$	1.55
Aluminate	$CaAl_2O_4$ (or) $CaO \cdot Al_2O_3$	1.64
(tri-) Aluminate	$Ca_3Al_2O_6$ (or) $3CaO \cdot Al_2O_3$	1.71
Aluminosilicate	$2CaAl_2O_3 \cdot SiO_2$	1.67
Aluminosilicate (Natural Anorthite)	$CaAl_2Si_2O_3$ or $Ca \cdot Al_2 O_3 \cdot 2SiO_3$	1.58
Borate -Meta	$Ca(BO_2)_2$ (col)	1.56
	(other)	1.66
Carbide	CaC_2	1.75

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Compound (Synonym)	Chemical Formula	Index of Refraction
Carbonate	CaCO ₃ (col)	1.68
(Natural Aragonite)	CaCO ₃	1.53
Other	CaCO ₃	1.66
Carbonate	CaCO ₃ (other)	1.49
(Natural Calcite (col))		1.66
Carbonate	CaCO ₃ ·6H ₂ O	1.46
(Hexa-Hydrate (col))		1.54
Perchlorate	CaClO ₄	N/A
Chloride	CaCl ₂	1.52
Chloride, Aluminate	3CaO·Al ₂ O ₃ ·CaCl ₂ ·10H ₂ O	1.55
Chloride, Hexahydrate	CaCl ₂ ·6H ₂ O	1.42
Hypochlorite	Ca(ClO) ₂	1.55
(powder) (flt. PI)		1.69
Chromate	CaCrO ₄ ·2H ₂ O	N/A
Citrate	Ca ₃ (C ₆ H ₅ O ₇) ₂ ·4H ₂ O	N/A
Fluosilicate	CaSiF ₆	N/A
Fluoride (Natural Fluorite)	CaF ₂	1.43
Hydroxide	Ca(OH) ₂	1.57
Iron(III)Aluminate, Calcium (tetra-) Alumino-ferite, (Natural Celite)	4CaO·Fe ₂ O ₃ ·Al ₂ O ₃	1.98
Magnesium Carbonate	CaCO ₃ ·MgCO ₃	1.68
(Natural Dolomite)		1.50
Magnesium Metasilicate	CaO·MgO·2SiO ₂	1.66
(Natural Diopside)		1.81
Magnesium Orthosilicate (Natural Mervnite)	3CaOMgOSiO ₂	1.70
Metaphosphate	Ca(PO ₃)	1.58
Orthophosphate, di- (sec) (Natural Brushite)	CaHPO ₄ ·2H ₂ O	1.55
Orthophosphate, Mono- (prim)	Ca(H ₂ PO ₄)·2H ₂ O	1.52
Orthophosphate, tri-(tert) (Natural hitlockite)	Ca(PO ₄) ₂	1.62
Oxide Lime, Calcia	CaO	1.83
Peroxide		1.89
Pyrophosphate	Ca ₂ (P ₂ O ₇)	1.59
Stearate	Ca(C ₁₈ H ₃₅ O ₂) ₂	1.46
Sulfate (Natural Anhydrite)	Ca(SO ₄)	1.57
Sulfate Soluble Anhydrite	Ca(SO ₄)	1.51
Sulfate, Dihydrate (Natural Gypsum)	CaSO ₄ ·2H ₂ O	1.52
CARBON	C	NT
Carbon, Diamond		2.42
Carbon, Graphite		N/A
Carbon, Amorphous		N/A
CELITE		1.98
CEMENT		1.98
CERIUM	Ce	NT
(III) Acetate	Ce(C ₂ H ₃ O ₂) ₃	N/A
Carbonate, Fluoride (Natural Bastnaesite)	CeFCO ₃	1.72
IV Fluoride	CeF ₄ ·H ₂ O	1.61
(III) Molybdate	Ce ₂ (MoO ₄) ₃	2.02
(III) Orthophosphate (Natural Monoazite)	CePO ₄	1.80

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Compound (Synonym)	Chemical Formula	Index of Refraction
CESIUM	Cs	NT
CESIUM Aluminum Sulfate	CsAl(SO₄)₂·12H₂O	1.46
Borohydride	CsBH₄	1.50
Bromide	CsBr	1.70
Mono-Chloride	CsCl	1.64
Iron (II) Sulfate	CS₂SO₄FeSO₂·6H₂O	1.51
Oxide	CS₂O	N/A
Selenate	CS₂SeO₄	1.60
Sulfate	Cs₂SO₄	1.56
CHROMIUM	Cr	NT
Dioxide	CR₂O₂	N/A
(III) Oxide, Sesqui	Cr₂O₃	2.55
(III) Orthophosphate	CrPO₄·6H₂O	1.57
(III Sulfate	Cr₂(SO₄)₃·18H₂O	1.56
COBALT	Co	NT
(II) Acetate	Co(C₂H₃O₂)₂·4H₂O	1.54
(II) Bromide	CoBR₂	N/A
(II) Chloride-dihydrate	CoCl₂·H₂O	1.62
(II) Nitrate	Co(NO₃)₂·6H₂O	1.52
(III) Oxide	CO₂O₃	N/A
Selnate		1.52
(II) Sulfate, Hepta-Hydrate (Natural Biegerite)	CoSO₄·7H₂O	1.48
Ammonium Cobaltate (Erdmann's Salt, Tetra Nitrodiamine)	NH₄[Co(NH₃)₂(NO₂)₄]	1.78
COPPER	Cu	NT
(II) Acetate (Natural Verdigris)	Cu(C₂H₃O₂)₂·H₂O	1.55
(I) Azide	CuN₃	N/A
(II)Carbonate	CuCO₃	1.66
(II)Carbonate (Basic Natural Malachite)	CuCO₃Cu(OH)₂	1.88
(II)Carbonate (Basic Natural Azurite or Chessylite)	2CuCO₃Cu(OH)₂	1.73
Perchlorate	Cu(ClO₄)₂	1.50
(I)Chloride(ous) (Natural Nontokite)	CuCl(or)CU₂Cl₂	1.50 1.93
(II)Chloride,-Dihydrate (Natural Eriochaleite)	CuCl₂·2H₂O	1.64
(I)Oxide (Natural Cuprite)	Cu₂O	2.71
(II)Oxide (Natural Tennurite)	CuO	2.63
(I)Sulfate	Cu₂SO₄	1.72
(II)Sulfate	CuSO₄	1.73
(II)Sulfate (Natural Brochantite)	CuSO₄·3Cu(OH)₂	1.77
(II)Sulfide (Natural Covellite)	CuS	1.45
(I)Sulfite, Monohydrate	Cu₂SO₃·H₂O	N/A
DIAMOND	C	2.40
DYSPROPIUM	Dy	NT
ERBIUM	Er	NT
EUROPIUM	Eu	NT
GADOLINIUM	Gd	NT
GALLIUM	Ga	NT
Oxide,sesqui	Ga₂O₃	1.92
GARNET		1.81

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Compound (Synonym)	Chemical Formula	Index of Refraction
GERMANIUM	Ge	NT
Bromide, Tetra-	GeBr₄	1.63
Oxide, di-(soluble)	GeO₂	1.66
GLASS, NORMAL DENSITY	SiO₂	1.51
GLASS, HIGH DENSITY	SiO₂	1.91
GOLD	Au	NT
(I)Chloride	AuCl	NA
HAFNIUM	Hf	NT
Fluoride	HfF₄	1.56
HYDROXYAPATITE	Ca₁₀(PO₄)₆OH₂	1.63
HYDROXYLAMINE	NH₂OH	NA
Fluogermanate	(NH₂OH)₂H₂GeF₆·2H₂O	1.42
INKS, PIGMENTS		1.51
IRIDIUM	Ir	NT
Carbonyl	Ir₄(CO)₁₂	NA
Oxide, Di	IrO₂	NA
IRON	FE	NT
(III)Orthoarsenate (Natural Scorodite)	FeAsO₄·2H₂O	1.77
Boride	FeB	NA
(II)Carbonate (Natural Siderite)	FeCO₃	1.88
Carbonyl, Tetra-	Fe(CO)₄	N/A
(II)Perchlorate Hexahydrate	Fe(C10₄).6H₂O	1.49
(II)Chloride (Natural Lawrencite)	FeCl₂	1.57
Hydroxide (Natural Goethite)	FeO(OH)	2.26
(II)Oxide (black)	FeO	2.32
(III)Oxide (Magnetite) (black)	Fe₃O₄	2.42
(III)Oxide (Hematite) (red)	Fe₂O₃	2.94
(III)Sulfate	Fe₂(SO₄)₃	1.81
(II)Sulfate, Hepta-Hydrate (Natural Melanterite)	Fe₂SO₄·7H₂O	1.47
(II)Sulfate, penta-hydrate (Natural Sideritol)	FeSO₄·5H₂O	1.53
(II)Sulfate, Tetra-hydrate	FeSO₄·4H₂O	1.53
Tantalate (Natural Tapiolite)	Fe(TaO₃)₂	2.27
Tungstate (Natural Ferbetite)	FeWO₄	2.40
KAOLIN CLAY		1.64
LANTHANUM	La	NT
Oxide Lanthana	La₂O₃	N/A
Sulfate, Hydrate	La₂(SO₄)₃·9H₂O	1.56
Sulfide	La₂S₃	N/A
LATEX (See POLYMERS and PLASTICS)		
LEAD	Pb	2.60
Acetate, Trihydrate (Sugar of Lead)	Pb(C₂H₃O₂)₂·3H₂O	1.57
Carbonate (Natural Ceruseite)	PbCO₃	2.08
Chloride (Natural Cotunite)	PbCl₂	2.20
Nitrate	Pb(NO₃)₂	1.78
Oxide-, di (Plattnerite)	(Li) PbO₂	2.30
Oxide-, Mono (Massicot)	PbO	2.51
Oxide, (Red Minimum)	Pb₃O₄	N/A
Palmitate	Pb(C₁₆H₃₁O₇)₂	N/A
Orthophosphate	Pb(PO₄)₂	1.97
Sulfate (Natural Anglesite)	PbSO₄	1.87

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Compound (Synonym)	Chemical Formula	Index of Refraction
Sulfate (Basic Natural Lanarkite)	$PbSO_4 \cdot PbO$	1.93
Sulfide (Natural Galena)	PbS	3.92
Dithionate	$PbS_2O_6 \cdot 4H_2O$	1.64
Tungstate (Natural Stolzite)	$PbWO_4$	2.27
Metavanadate	$Pb(VO_3)_2$	N/A
LIPOSOMES		1.44 – 1.50
LITHIUM	Li	NT
Acetate	$LiC_2H_3O_2 \cdot 2H_2O$	1.40
Carbonate	Li_2CO_3	1.43
Oxide	LiO_2	1.64
Fluoride	LiF	1.39
Fluosilicate	$Li_2SiF_4 \cdot 2H_2O$	1.30
Hydroxide	$LiOH$	1.46
LUTETIUM	Lu	NT
MAGNESIUM	Mg	NT
Acetate, Tetrahydrate	$Mg(C_2H_3O_2)_2 \cdot 4H_2O$	1.49
Aluminate (Natural Spinel)	$MgAl_2O_4$	1.72
Carbonate (Natural Magnesite)	$MgCO_3$	1.72, 1.52
Carbonate (Natural Artinite)	$MgCO_3 \cdot Mg(OH)_2 \cdot 3H_2O$	1.49
(Basic, Artinite)		1.53
Carbonate (Basic Natural Hydromagnesite)	$3MgCO_3 \cdot Mg(OH)_2 \cdot 3H_2O$	1.53
Carbonate, Pentahydrate (Natural Lansfordite)	$MgCO_3 \cdot 5H_2O$	1.46
Carbonate, Trihydrate (Natural Nesquehonite)	$MgCO_3 \cdot 3H_2O$	1.50
Chloride	$MgCl_2$	1.68
Chloride, Hexahydrate (Natural Bischofite)	$MgCl_2 \cdot 6H_2O$	1.50
Fluoride (Natural Sellaite)	MgF_2	N/A
Fluosilicate	$MgSiF_6$	N/A
Hydroxide (Natural Brucite)	$Mg(OH)_2$	1.56
Oxide (Natural Periclase)	MgO	1.74
Phosphate (ortho)		1.52
Sulfate	$MgSO_4$	1.56
Sulfate, Heptahydrate (Epsom Salt, Natural Epsomite)	$MgSO_4 \cdot 7H_2O$	1.43
Sulfate, Monohydrate Natural (Kieserite)	$MgSO_4 \cdot H_2O$	1.52
Sulfide	MgS	2.27
Sulfite	$MgSO_3 \cdot 6H_2O$	1.51
MANGANESE	Mn	NT
Fluosilicate	$MnSiF_6 \cdot 6H_2O$	1.38
(II)Hydroxide (Natural Pyrochroite)	$Mn(OH)_2$	1.72
(III) Hydroxide (Magnanite)	$MnO(OH)$	2.24
(II,III)Oxide (Natural Hausmannite)	Mn_3O_4	2.46
(II)Pyrophosphate	$Mn_2P_2O_7$	1.70
(II)Metasilicate (Natural Rhodonite)	$MnSiO_3$	1.73
(II)Sulfate	$MnSO_4$	N/A
(II)Sulfate, Monohydrate (Natural Szmikite)	$MnSO_4 \cdot H_2O$	1.56
(II)Sulfate, Pentahydrate	$MnSO_4 \cdot 5H_2O$	1.50
(II)Sulfide (Alabandite)	MnS	2.70
(II)Tantalate	$Mn(TaO_3)_2$	2.22

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Compound (Synonym)	Chemical Formula	Index of Refraction
MELAMINE		1.87
MERCURY	Hg	1.80
Chloride	HgCl ₂	1.80
Iodide	HgI ₂	2.50
MICA (SEE POTASSIUM)		1.55
MOLYBDENUM	Mo	NT
Boride,	MoB ₂	N/A
Hydroxide	Mo(OH) ₃ (or)Mo ₂ O ₃ ·3H ₂ O	N/A
Oxide, di	MoO ₂	N/A
NEODYMIUM	Nd	NT
Oxide (Neodymia)	Nd ₂ O ₃	N/A
Sulfate	Nd ₃ (SO ₄) ₃ ·8H ₂ O	1.41
NICKEL	Ni	NT
Oxide, mono- (Natural Bunsenite)	NiO	2.18
NIOBIUM	Nb	NT
PALLADIUM	Pd	NT
PHOSPHORUS	P ₄	NT
Black	P ₄	N/A
Red	P ₄	N/A
White	P ₄	2.14
PLATINUM	Pt	NT
(IV)Chloride, Tetra	PtCl ₄	N/A
POLYMERS and PLASTICS		
Acrylate polymers		1.49
Cellulose		1.54
Cellulose acetate		1.49
Cellulose nitrate		1.51
Divinylbenzene		1.59
Epoxy resins		1.55 – 1.60
Nylons (Type II – PA)		1.52
Polyacrolein		1.53
Polyolefin blend		1.51
Polyacrylic acid		1.53
Poly(1,3 butadiene)		1.52
Poly(butadiene) (approx. 30% styrene)		1.53
Polyester coating		1.77
Polyethylene (density=0.914 g/ml)		1.51
Polyethylene (density= 0.940-0.945 g/ml)		1.53
Polyethylene (density =0.965 g/ml)		1.55
Polymethyl methacrylate	PMMA	1.49
Polypropylene (density=0.9075 g/ml)		1.50
Polystyrene	(PS)	1.59
Polystyrene/butadiene (60/40)		1.56
Polystyrene/butadiene (95/5)		1.58
Polystyrene/divinyl benzene (95/5)		1.59
Polyurethane		1.50 – 1.60
Polyvinyl alcohol	(PVA)	1.51
Polyvinyl acetate		1.47
Polyvinyl toluene	(PVT)	1.59
Polyvinyl chloride		1.55

Particle Refractive Index Table

Compound (Synonym)	Chemical Formula	Index of Refraction
Poly (vinyl methacrylate)		1.51
Proteins		1.54
PTFE		1.35
Rubber (Natural)		1.52
Rubber (unvulcanized)		1.51
Urea Formaldehyde		1.54 - 1.58
POTASSIUM	K	NT
Aluminosilicate (Natural Orthoclase)	KAISi_3O_3 (or) $\text{K}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 6\text{SiO}_2$	1.52
Aluminosilicate (Natural Microline)	KAISi_3O_3 (or) $\text{K}_2\text{O}_3 \cdot 6\text{SiO}_3$	1.52
Aluminum Metasilicate (Natural Leucite)	KAISi_2O_6	1.51
Aluminum Orthosilicate (Natural Kaliophilite)	KAISiO_4	1.53
Aluminum Sulfate (Natural Kalinite)	$\text{KAl}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$	1.45
Antimony Tartrate	$\text{KSbC}_4\text{H}_4\text{O}_7 \cdot 1/2\text{H}_2\text{O}$	1.62
Meta Borate		1.45
Bromide	KBr	1.56
Calcium Chloride (Chlorcalcite)	KCl·CaCl	1.52
Calcium Magnesium Sulfate (Polyhalite)	$\text{K}_2\text{Ca}_2\text{Mg}(\text{SO}_4) \cdot 2\text{H}_2\text{O}$	1.55
Carbonate	K_2CO_3	1.53
Carbonate, Dihydrate	$\text{K}_2\text{CO}_3 \cdot 2\text{H}_2\text{O}$	1.38
Carbonate, Hydrogen	KHCO_3	1.48
Carbonate Trihydrate	$2\text{K}_2\text{CO}_3 \cdot 3\text{H}_2\text{O}$	1.38
Chlorate	KClO_3	1.41
Perchlorate	KClO_4	1.47
Chloride (Natural Sylvite)	KCl	1.49
Chromate (Natural tarapacite)	K_2CrO_4	1.74
Dichromate-	$\text{K}_2\text{Cr}_2\text{O}_7$	1.74
Fluoride	KF	1.36
Iodide	KI	1.68
Iron Chloride (II) (Rinneite)	$3\text{KCl} \cdot \text{NaCl} \cdot \text{FeCl}_2$	1.59
Iron Sulfate	$\text{KFe}(\text{SO}_4)_3 \cdot 12\text{H}_2\text{O}$	1.45
Iron Sulfate (III) (Natural Krausite)	$\text{K}_2\text{SO}_4 \cdot \text{Fe}_2(\text{SO}_4)_3 \cdot 24\text{H}_2\text{O}$	1.48
Iron Sulfate (II)	$\text{K}_2\text{SO}_4 \cdot \text{FeSO}_4 \cdot 6\text{H}_2\text{O}$	1.48
Magnesium Sulfate (Natural Leonite)	$\text{K}_2\text{SO}_4 \cdot 2\text{MgSO}_4 \cdot 4\text{H}_2\text{O}$	1.48
Permanganate	KMnO_4	1.59
Manganese Chloride(ous) (chloromanganokalite)	$4\text{KCl} \cdot \text{MnCl}_2$	1.50
Manganese sulfate(ous) (Manganolongbeinite)	$\text{K}_2\text{SO}_4 \cdot 2\text{MnSO}_4$	1.57
Methionate Potassium Disulfonate	$\text{K}_2\text{CH}_2(\text{SO}_3)_2$	1.54
Methylsulfate	$2\text{KCH}_3\text{SO}_4 \cdot \text{H}_2\text{O}$	N/A
Nitrate (Saltpeter)	KNO_3	1.34, 1.51
Oxalate	$\text{K}_2\text{C}_2\text{O}_4 \cdot \text{H}_2\text{O}$	1.44
Oxalate, Hydrogen	KHC_2O_4	1.38
Oxalate, Tetra	$\text{HKC}_2\text{O}_4 \cdot \text{H}_2\text{C}_2\text{O}_4 \cdot 2\text{H}_2\text{O}$	1.56
Phosphate		1.50
Silicate - Di	$\text{K}_2\text{Si}_2\text{O}_5$	1.50
Silicate - Di	KHSi_2O_5	1.48
Silicate – Meta	K_2SiO_3	1.52, 1.53
Silicate - Tetra	$\text{K}_2\text{Si}_4\text{O}_9 \cdot \text{H}_2\text{O}$	1.50, 1.54
Hydrogen		1.53

Particle Refractive Index Table

Compound (Synonym)	Chemical Formula	Index of Refraction
Sulfate, Hydrogen (Misenite or Natural Mercallite)	KHSO_4	1.48
D-Tartrate, Hydrogen	KHC_4HO_6	1.51, 1.55, 1.59
Thiocyanate	KNCS	1.66
PRASEODYMIUM	Pr	NT
Sulfate, Octahydrate	$\text{Pr}_2(\text{SO}_4)_3 \cdot 8\text{H}_2\text{O}$	1.54
RHODIUM	Rh	NT
RUBIDIUM	Rb	NT
Fluoride	RbF	1.40
RUTHENIUM	Ru	NT
SELENIUM	Se	NT
Oxide	SeO_2	1.76
SILICON	Si	NT
Carbide	SiC	2.60
Oxide, Di- (Natural Cristobalite)	SiO_2	1.48
Oxide, Di- (Natural Lehatelierite)	SiO_2	1.45
Oxide, Di- (Natural Opal)	$\text{SiO}_2 \cdot \text{H}_2\text{O}$	1.41
Oxide, Di- (Natural Tridymite)	SiO	1.47
Oxide, Di- (Natural Quartz)	SiO_2	1.54
Oxide, Di- (Synthetic amorphous)	SiO_2	1.46
Nitride	Si_3N_4	2.2
SILVER	Ag	NT
Bromide (Bromyrite)	AgBr	2.25
Chloride (Natural Ceragyrite)	AgCl	2.07
Iodide (Natural Iodrite)	AgI	2.21
Nitrate	AgNO_3	1.73
Oxide	Ag_2O	N/A
Oxide, per	$\text{Ag}_2\text{O}_2(\text{or})\text{AgO}$	N/A
Sulfate	Ag_2SO_4	1.76
SODIUM	Na	4.22
Acetate	$\text{NaC}_2\text{H}_3\text{O}_2$	1.46
Alumina Trisilicate (Natural Albite)	$\text{NaAlSi}_3\text{O}_8(\text{or})$ $\text{Na}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 6\text{SiO}_2$	1.52
Aluminate -Meta	NaAlIO_2	1.57
Aluminum, Orthosilicate (Natural Nephelite)	$\text{Na}_7\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2$	1.54
Aluminum Sulfate	$\text{NaAl}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$	1.44
Azide	NaN_3	1.35
Tetraborate	$\text{Na}_2\text{B}_4\text{O}_7$	1.50
Tetraborate, Decahydrate (Borax)	$\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$	1.45
Borohydride	NaBH_4	1.54
Bromide	NaBR	1.64
Calcium Sulfate	$\text{Na}_2\text{Ca}(\text{SO}_4)_2 \cdot 2\text{H}_2\text{O}$	N/A
Carbonate	Na_2CO_3	1.54
Carbonate, Decahydrate (Washing Soda)	$\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$	1.41
Carbonate, Monohydrate (Crystal Carbonate or Thermonatrite)	$\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$	1.51
Perchlorate	NaClO_4	1.46
Chloride (Common Salt or Natural Halite)	NaCl	1.53

Particle Refractive Index Table

Compound (Synonym)	Chemical Formula	Index of Refraction
Cyanide	NaCN	1.45
Ferrocyanate (Yellow Prussiate of Soda)	Na ₄ Fe(CN) ₆ ·10H ₂ O	1.52
Fluosilicate	Na ₂ SiF ₆	1.31
Iodide	NaI	1.77
Iron (III) Oxalate	Na ₃ Fe(C ₂ O ₄) ₃ ·51/2H ₂ O	N/A
Iron Sulfate	3Na ₂ SO ₄ ·Fe ₂ (SO ₄) ₃ ·6H ₂ O	1.56
Magnesium Sulfate (Natural Bloedite)	Na ₂ SO ₄ ·MgSO ₄ ·4H ₂ O	
Nitrate (Soda Niter)	NaNO ₃	1.59
Phosphate -Hypo	Na ₄ P ₂ O ₆ ·10H ₂ O	1.48
Phosphate- Hexa Meta (Graham's Salt)	(NaPO ₃) ₆	1.48
Phosphate -Ortho	Na ₃ PO ₄ ·12H ₂ O	1.45
Sulfate, Anhydrous	Na ₂ SO ₄	1.48
Sulfate, Decahydrate (Glauber's Salt / Mirabilite)	Na ₂ SO ₄ ·10H ₂ O	1.39
Sulfite	Na ₂ SO ₃	1.57
D-Tatrate, Hydrogen	NaHC ₄ H ₄ O ₆ ·H ₂ O	1.53
Thioarsenate	Na ₃ AsS ₄ ·8H ₂ O	1.68
Dithionate	Na ₂ S ₂ O ₄ ·2H ₂ O	1.48
Uranyl Acetate	(C ₂ H ₃ O ₂) ₃ NaUO ₂	1.50
STARCH		1.53
STRONTIUM	Sr	NT
Carbonate	SrCO ₃	1.61
Chloride, Dihydrate	SrCl ₂ ·2H ₂ O	1.59
Fluoride	SrF ₂	1.44
Nitrite	Sr(NO ₂) ₂ ·H ₂ O	1.59
Oxide	SrO	1.81
Sulfate (Natural Celestite)	SrSO ₄	1.62
Sulfide, Hydro	Sr(HS) ₃	2.11
SUGAR (SUCROSE)		1.54
SULFUR	S ₆	1.96
Chloride, Di	S ₂ Cl ₂	1.56
Chloride, Mono	S ₂ Cl ₂	1.67
TANTALUM	Ta	NT
Boride, Di-	TaB ₂	NA
Carbide	TaC	N/T
Oxide, Pent-	Ta ₂ O ₅	N/A
TELLURIUM	Te	1.00
TIN	Sn	NT
(IV)Oxide, Di- (Natural Cusssiterite)	SnO ₂	2.00
TITANIUM	Ti	NT
Boride, Di	TiB ₂	N/A
Chloride, Tetra	TiCl ₄	1.61
Hydride	TiH ₂	2.40
Oxide, Di- (Natural Brookite)	TiO ₂	2.58
Oxide, Di- (Natural Octahedrite or Anatase)	TiO ₂	2.55
Oxide, Di- (Natural Rutile)	TiO ₂	2.62
TUNGSTEN (WOLFRAM)	W	NT
Carbide	WC	N/A
Oxide, Di-	WO ₂	N/A
UREA FORMALDEHYDE		1.43
VANADIUM	V	3.03

Particle Refractive Index Table

Compound (Synonym)	Chemical Formula	Index of Refraction
Oxide, Pent-	V_2O_5	1.46, 1.76
YTTERBIUM	Yb	NT
YTRIUM	Y	NT
Oxide Yttria	Y_2O_3	N/A
Sulfate, Octahydrate	$Y_2(SO_4)_3 \cdot 8H_2O$	1.54
ZINC	Zn	NT
Acetate, Dihydrate	$Zn(C_2H_3O_2)_2 \cdot 2H_2O$	1.49
Bromate	$Zn(BrO_3)_2 \cdot 6H_2O$	1.55
Chloride	$ZnCl_2$	1.68
Oxide (Natural Zincite)		2.01
Oxide	ZnO	2.03
Orthophosphate, Tetrahydrate (Hopeite)	$Zn_3(PO_4)_2 \cdot 4H_2O$	1.57
Selenide	$ZnSe$	2.89
Silicate (Natural Hemimorphite)	$2ZnO \cdot SiO_2 \cdot H_2O$	1.60
Sulfide, (Natural Wurtzite)	ZnS	2.35
ZIRCONIUM	Zr	NT
Bromide, Di-	$ZnBr_2$	N/A
Nitrate	$Zr(NO_3)_4 \cdot 5H_2O$	1.60
Oxide (Natural Baddeleyite)	ZrO_2	2.17
Phosphate (ortho)		1.60
Silicate (fumed silica)	$ZrSiO_2$	1.97
Silicate -Ortho (Zircon)	$ZrSiO_4$	1.92
Sulfate	$Zr(SO_4)_2 \cdot 4H_2O$	N/A

References

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Abbreviations

- N/A – Not Available (Please contact Microtrac for assistance)
- N/T – Not transparent, absorbing, opaque
- Col – Columnar crystal structure
- Trig – Trigonal crystal structure
- Rhomb. – Rhombohedral crystal structure
- α, β, γ – Crystal form of the compound