Sample dispersion and refractive index guide

Mastersizer 2000

Reference manual

MALVERN
INSTRUMENTS

Sample Dispersion and Refractive Index Guide

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Table of Contents

Refractive index list

Compound	Formula	Refractive index
Acanthite (Silver Sulphide)	Ag_2S	2.2
Acetal		1.48
Acetone		1.36
Adipic Acid	$(CH_2.CH_2.COOH)_2$	1.433
Agate	SiO_2	1.544 - 1.553
Albite	$Na_2O.Al_2O_3.6SiO_2$	1.529
Albite (Feldspar)	$NaAlSi_3O_8$	1.527 - 1.538
Almandine (Garnet)		1.830
Alumina	Al_2O_3	1.760
Alumina trihydrate	$Al_2O_{33}H_20$	1.577-1.595
Aluminium Hydroxide (Nat. Boehmite)	$Al(OH)_2$ AlO(OH)	1.56 - 1.75 1.64 - 1.67
Aluminium Oxide (Corundum)	Al_2O_3	1.76 - 1.768 1.765
Aluminium Silicate	$Al_2O_3.SiO_2$	1.65
Aluminium Stearate	$Al(C_{18}H_{35}O_2)_3$	1.49
Aluminum Sulphate	$Al_2(SO_4)_3$	1.47
Ammonium Chloride	NH_4Cl	1.642
Ammonium Sulphate	NH_4SO_4	1.523
Ammonium Dihydrogen Phosphate	$(NH_4)H_2P_2O_6$	1.52
Anatase (Titanium Dioxide)	TiO_2	2.49 - 2.56
Andesine (Feldspar)	([NaSi]0.7-0.5 [CaAl]0.3-0.5)$AlSi_2O_8$	1.544 - 1.563

Compound	Formula	Refractive index
Andradite (Garnet)		1.887
Anglesitte (Lead Sulphate)	$PbSO_4$	1.8771 - 1.8937
Anhydrite (Calcium Sulphate)	$CaSO_4$	1.5698 - 1.6136
Anhydrite (Gypsum)	$CaSO_4.2H_2O$	1.57 - 1.61
Anhydrous Borax	$Na_2O.2B_2O_3$	1.501
Anorthite (Feldspar)	$CaAl_2Si_2O_8$	1.577 -1.590
Anorthoclase (Feldspar)	$(Na,K)AlSi_3O_8$	1.523 - 1.529
Antimony Trioxide (Nat. Semarnontite) (Nat. Valentine)	Sb_2O_3	 2.087 2.18 - 2.35
Antimony Vermilion	Sb_2S_3	2.65
Aragonite (Calcium Carbonate)	$CaCO_3$	1.530 - 1.686
Arsenic Sulphur Glass		2.61
Arsenous Oxide	As_2O_3	1.76 (V) 1.92 (I)
Asphaltum (Bitumen)		1.64 - 1.66
Azurite	$2CuCO_3.Cu(OH)_2$	1.73 - 1.83
Baddeyelite (Zirconium Oxide)	ZrO_2	2.13 - 2.20
Barite (Barytes)	$BaSO_4$	1.6362 - 1.6482
Barium Carbonate (Witherite)	$BaCO_3$	1.529 - 1.677
Barium Chloride	$BaCl_2.2H_2O$	1.642
Barium Crown Glass (Light) (Medium) (Dense)		 1.54065 1.576 1.613
Barium Fluoride	BaF_2	1.47
Barium Oxide	BaO	1.98
Barium Sulphate (Barite, Barytes)	$BaSO_4$	1.637 - 1.649
Barium Mono-sulphide	BaS	2.155
Barium Titanate	$BaTiO_3$	2.40
Barium Yellow	$BaCrO_4$	1.94 - 1.98
Barytes (Barite, Blanc Fixe)	$BaSO_4$	1.636 - 1.649
Benzene	C_6H_6	1.50

Compound	Formula	Refractive index
Benzyl Alcohol	$C_6H_5CH_2OH$	1.538-1.541
Benzyl Benzoate		1.568-1.570
Beryllium Oxide	BeO	1.719
Biotite (Mica)	$K(Mg,Fe)_3\ AlSi_3O_{10}(OH,F)_2$	1.565 - 1.696
Bitumen		1.6500
Black Pigments		1.675 (average)
Blanc Fixe (Artificial Barytes)	$BaSO_4$	1.638 - 1.649
Blue Pigments		1.63 (average)
Boehmite	AlO(OH)	1.64 - 1.67
Bone Black	$C + Ca_3(PO_4)_2$	1.65 - 1.70
Boracic Acid	$B_2O_3.3H_2O$	1.456
Borax	$Na_2B_4O_7$	1.4466 - 1.4687
Borax	$Na_2O.2B_2O_3.10H_2O$	1.469
Boric Oxide	B_2O_3	1.459
Boro-silicate Crown Glass (Soda lime glass)		1.50970 1.513
Boron Oxide	B_2O_3	1.61-1.64
Boron Oxide Glass	B_2O_3	1.485
Brick Dust		1.44
Brookite (Titanium Dioxide)	TiO_2	2.5831 - 2.7004
Brown Pigments		1.653 (average)
N-butanol	$CH_3CH_2CH_2CH_2OH$	1.3993
Butanone	$CH_3CH_2COCH_3$	1.38
Butter Fat		1.4548
Cadmium Iodide	CdI_2	2.7
Calcium Metaborate	$Ca(BO_2)_2$	1.660
Cadmium Oxide	CdO	1.49
Cadmium Red	CdS(Se)	2.64 - 2.77
Cadmium Red Lithopone	$CdS(Se) + BaSO_4$	2.50 - 2.76
Cadmium Sulfide (Greenockite)	CaS	2.506 - 2.529
Cadmium Yellow	CdS	2.35 - 2.48
Cadmium Yellow Lithopone	$CdS + BaSO_4$	2.39 - 2.40

Compound	Formula	Refractive index
Calcite (Calcium Carbonate)	$CaCO_3$	1.486 - 1.740
Calcium Carbide	CaC_2	1.750
Calcium Carbonate	$CaCO_3$	1.681 (IV)
Calcium Carbonate (Aragonite) (Nat. Calcite) (Nat. Vaterite)	$CaCO_3$	 1.53 - 1.685 1.4864 - 1.74 1.55 - 1.65
Calcium Carbonate Hexahydrate	$CaCO_3.6H_2O$	1.460 - 1.545
Calcium Chloride	$CaCl_2$	1.52
Calcium Chlorite	$Ca(ClO)_2.2Ca(OH)_2$	1.51 - 1.585
Calcium Fluoride (Fluorite)	CaF_2	1.43 - 1.44
Calcium Hydroxide (Hydrated Lime)	$Ca(OH)_2$	1.545 - 1.574
Calcium Hypochlorite	$Ca(ClO)_2$	1.545 - 1.69
Calcium Hypochlorite Tri-hydrate	$Ca(ClO)_2.3H_2O$	1.535 - 1.63
Calcium Magnesium Carbonate (Dolomite)	$CaCO_3$, $MgCO_3$	1.5026-1.6817
Calcium Metasilicate (a)	$CaSiO_3$	1.6350
Calcium Metasilicate (b) (Nat. Wollastonite)	$CaSiO_3$	1.6145
Calcium Molybdate (Pawellite)	$CaMoO_4$	1.97
Calcium Oxide (lime) (Calcia)	CaO	1.838
Calcium Peroxide	CaO_2	1.895
Calcium Phosphate	$Ca_3(PO_4)_2$	1.629
(tri) Calcium Phosphate	$Ca_3(PO_4)_2$	1.627
Calcium Meta Silicate (a) (Nat. Pseudowollastonite)	$CaSiO_3$	1.610 - 1.664
Calcium Meta Silicate (b) (Wollastonite)	$CaSiO_3$	1.616 - 1.613
Calcium Di-ortho Silicate I	Ca_2SiO_4	1.717 - 1.735
Calcium Di-ortho Silicate Ii	Ca_2SiO_4	1.717 - 1.735
Calcium Di-ortho Silicate Iii	Ca_2SiO_4	1.642 - 1.654
Calcium Tri-silicate (Nat. Alite)	Ca_3SiO_5 or $3Ca.SiO_2$	α 1.718 - β 1.724

Compound	Formula	Refractive index
Calcium Sulphate (Nat. Anhydrite) (Nat. Gypsum)	 $CaSO_4.2H_2O$ $CaSO_4.2H_2O$	 1.569 - 1.613 1.521 - 1.53
Calcium Sulphide (Nat. Oldhamite)	CaS	2.137
Calcium Titanate	$CaTiO_3$	1.57
Calcium Tungstate	$CaWO_4$	1.9185
Caraway Oil		1.485-1.492
Carbon (Lamp Black, Graphite)	C	2.42
Carbon Tetrachloride / Tetrachloromethane	CCl_4	1.46
Cardamom Oil		1.461-1.467
Castor Oil		1.4770
Castrol		1.1000
Cellulose Acetate		1.46-1.5
Cellulose Acetate Butpate		1.46-1.49
Cement		1.68 (average)
Cerium Compounds		1.8282
Cerium (iii) Orthophosphate (nat. Monazite)	$CePO_4$	1.774-1.851
Cerulean Blue	$CoO.\eta SnO_2$	1.84
Cerussite	$PbCO_3$	1.804 - 2.079
Chalk (Whiting)	CaCO See Calcium Carbonate	1.53 - 1.68
Chalcedony (Fiberous, Impure Quartz)	SiO_2	1.544- 1.553
Chazabite		1.482
China Clay (Kaolinite)	$Al_4Si_4O_{10}(OH)_8$	1.533 - 1.577
Chloroform	$CHCl_3$	1.446
Chocolate		1.5900
Chrome Alum	$Cr_2(SO_4)_3.K_2SO_4.24H_2O$	1.481
Chrome Orange	$PbCrO_4.Pb(OH)_2$	2.42 - 2.7
Chrome Green (med.)	$Fe_4[Fe(CN)_6]_3 + PbCrO_4$	2.4
Chrome Yellow (med.)	$PbCrO_4$	2.31 - 2.49
Chromic Oxide	Cr_2O_3	2.551

Compound	Formula	Refractive index
Chromium	Cr	3.51
Chromium Oxide Green	Cr_2O_3	2.5
Cigarette Ash		1.53
Cinnamon Oil		1.573-1.600
Clofibrate		1.500-1.505
Clove Oil		1.528-1.537
Coconut Oil		1.448-1.450
Cobalt Blue	$CoO.Al_2O_3$	1.74
Cobalt Carbonate (Nat. Spherocobaltite)	$CoCO_3$	1.60 - 1.855
Cobalt Ii Per-chlorate	$Co(ClO_4)_2.6H_2O$	1.55
Cobalt Ii Per-chlorate (Needles)	$Co(ClO_4)_2$	1.490 - 1.51
Cobalt Ll Chloride Di-hydrate	$CoCl_2.2H_2O$	1.625 - 1.67
Cobalt Fluosilicate	$CoSiF_6.6H_2O$	1.382 - 1.387
Cobalt Green	$CoO.\pi ZnO$	1.94 - 2.0
Cobalt Yellow	$CoK_3(NO_2)_6.H_2O$	1.72 - 1.76
Cobalt Il Oxide	CoO	1.74
Cobalt Violet	$Co_3(PO_4)_2$	1.65 - 1.81
Cocoa Butter		1.4568
Cobaltous Nitrate	$Co(NO_3)_2.6H_2O$	1.4
Cobaltus Sulphate	$CoSO_4.7H_2O$	1.483
Coconut Oil		1.4493
Cod-liver Oil		1.481
Coffee Dust		1.53
Copper	Cu	0.25
Copper Il Carbonate (Nat. Malachite) (Nat. Azurite, Chessylite)	 $CaCO_3.Cu(OH)_2$ $2CaCO_3.Cu(OH)_2$	 1.655 - 1.909 1.730 - 1.838
Copper L Chloride (Nantokite)	CuCl	1.93
Copper Il Chloride Di-hydrate	$CuCl_2.2H_2O$	1.644 - 1.731
Copper I Oxide (Cuprite)	Cu_2O	2.705
Copper Il Oxide (Tenorite)	CuO	2.63
Copper III Oxide		1.93

Compound	Formula	Refractive index
Copper I Sulphate (powder)	Cu_2SO_4	1.724 - 1.739
Copper II Sulphate (Nat. Hydrocianite)	$CuSO_4$	1.733
Copper II Sulphate Basic (Nat. Brochantite)	$CuSO_4.3Cu(OH)_2$	1.728 - 1.800
Copper II Sulphate Pentahydrate (Nat. Chalcanthacite)	$(CuSO_4.5H_2O)$	1.514 - 1.543
Copper II Sulphide (Nat. Covellite)	CuS	1.45
Coriander Oil		1.462-1.472
Cork Dust		1.49 - 1.65
Corn Oil (Zea Mays)		1.4734
Corundum (Ruby, Saphire)	Al_2O3	1.759 - 1.772
Cotton		1.459 - 1.58
Cotton Seed Oil		1.4735
Covellite (Copper II Sulphide)	CuS	1.45
Cristobalite (Quartz)	SiO_2	1.484 - 1.487
Crotamiton		1.540-1.542
Crown Glass (Soft) (Hard)		 1.51516 1.51899
Cryolite	$3NaF.AlF_3$	1.339
Cupric Oxide	CuO	2.63
Cuprite (Copper I Oxide)	Cu_2O	2.705
Cuprous Oxide	Cu_2O	2.705
Cyclic Ketone Resin		1.60
Cyclohexane		1.4266
Cyclohexanone		1.45
Dandruff & Epithelial Cells		1.53
N - Decane	CH_3, (CH_2) $8CH_3$	1.4102
Dementholised		1.456-1.466
Diglyme (Dimethyldigol or Diethylene Glycol Dimethylether)	$(CH_3, O,CH_2, CH_2)_20$	1.4070-1.4085
Diamond	C	2.4175
Diatomaceous Earth (Silicon Dioxide)	SiO_2	1.435

Compound	Formula	Refractive index
Dichloromethane		1.42
Diethyl Phthalate		1.500-1.505
Dimethyl Sulphoxide		1.478-1.479
Dill Oil		1.481-1.492
Dimer Caprol		1.568-1.574
Dimethylformamide		1.4305
Dolomite	$CaCO_3.MgCO_3$	1.5026-1.6817
Dover		1.4300
Eddingtonite		1.55
Egyptian Blue	$CaO.CuO.4SiO_2$	1.605 - 1.635
E.K.2		1.74338
Emerald Green (Paris green)	$Cu(C_2H_3O_2)_2.2Cu\ (OH)_2$	1.71 - 1.78
Epithelial Cells (Dandruff)		1.53
Epoxy		1.58
Epsom Salt (Epsomite)	$MgSO_4.7H_2O$	1.433 - 1.461
Ethanol	CH_3CH_20H	1.36
Ethanediol	$HOCH_2CH_2OH$	1.43
Ethanolamine	$H_2NCH_2CH_2OH$	1.453-1.459
Ethyl Cinnamate		1.558-1.560
Ethylene Glycol	$HOCH_2CH_2OH$	1.432
Eucalyptus Oil		1.458-1.470
Feldspar		
(Albite)	$NaAlSi_3O_8$	1.527 - 1.538
(Andesine)	$AlSi_2O_8$	1.544 - 1.563
(Anorthite)	$CaAl_2Si\ 2O_8$	1.577 - 1.590
(Anorthoclase)	$(Na,K)AlSi_3O_8$	1.523 - 1.529
(Microcline)	$KAlSi_3\ O_8$	1.514 - 1.539
(Oligoclase)	$([Na,Si]0.9\text{-}0.7\ [CaAl]0.1\text{-}0.3)\ AlSi_2\ O_8$	1.533 - 1.552
(Orthoclase)	$KAlSi_3\ O_8$	1.518 - 1.539
Ferric Oxide	Fe_2O_3	3.01
Ferric Sulphate	$Fe_2(SO_4)_3$	1.814
Ferroso - Ferric Oxide	Fe_3O_4	2.42

Compound	Formula	Refractive index
Ferrous Carbonate	$FeCO_3$	1.875
Ferrous Oxide	FeO	2.32
Ferrous Sulphate (Copperas)	$FeSO_4.7H_2O$	1.471
Flint (Impure Quartz) (Telescope) (Barium) (Barium light) (Borate) (Special barium) (Extra light)	SiO_2	 1.553 1.53042 1.60483 1.56713 1.61326 1.74416 1.54769
Flint Glass (Light) (Dense) (Extra dense) (Double extra dense)		1.53 - 1.96 1.57838 1.62258 1.65108 1.80120
Flour Crown		1.49429
Fluorite (Fluorspar)	CaF_2	1.433 - 1.435
Fluorspar (Avorite)	CaF_2	1.433 - 1.435
Fractionated Coconut Oil		1.445-1.451
Fractionated Palm Kernel Oil		1.445-1.447
Furhairs		1.54 - 1.55
Fused Quartz		1.45887
Gallium Antimonide	GaS_6	3.8 (approximately)
Gallium Arsenide	GaAs	3.33 (approximately)
Gallium Phosphide	GaP	3.39
Garnet (Almandine) (Andradite) (Grossularite) (Hydrogrossularite) (Pyro pe) (Spessartite) (Uvarovite)		1.779 (average) 1.830 1.887 1.734 1.675 - 1.734 1.714 1.80 1.86

Compound	Formula	Refractive index
Glass (Hardcrown) (Borosilicate crown) (Medium barium crown) (Dense barium crown) (Light flint) (Dense flint) (Extra dense flint) (Double extra dense flint)		 1.518 1.509 1.576 1.613 1.583 1.621 1.652 1.802
Glass (crown)		1.48 - 1.61
Glass (flint)		1.53 - 1.96
Glasses & Mineral Wools		1.47 - 1.62
Glycerol		1.47
D-Glucose Pentaamethylether	C_1,$H_{22}O_6$	1.4466
Glycine Soja (Soybean Oil)		1.4729
Gmelinite		1.481
Goethite (Ochre, Yellow) (Sienna, Raw)	$Fe_2O_2.H_2O$	 2.0 - 2.4 1.87 - 2.17
Gold	Au	0.28 - 0.31
Green Earth		1.62
Greenockite	CaS	2.506 - 2.529
Green Pigments		1.811 (average)
Grossularite (Garnet)		1.734
D-gulcitol (D-Sorbitol)		1.333
Gum		1.54
Gypsum (Calcium Sulphate Dihydrate)	$CaSO_4.2H_2O$	1.519 - 1.531
Hafnium	Hf	3.64
Hair (human)		1.54 - 1.56
Halite (Rock Salt)	NaCl	1.544
Hardcrown Glass		1.518
Harmotome		1.5078
Hausmannite (Manganese Oxide)	Mn_3O_4	2.15 - 2.46
Helianthus (Annus)		1.4694
Hematite		

Compound	Formula	Refractive index
(Iron III Oxide)	Fe_2O_3	2.94 - 3.22
Heptane	C_7H_{16}	1.39
Herring Oil		1.4610
Heulandite		1.500
Hexane	C_6H_{14}	1.38
Hydroglossularite (Garnet)		1.675 - 1.734
Ibuprofen		1.4364
Iceland Spar (Calcite)	$CaCO_3$	1.658 - 1.486
Insect Parts		1.54 - 1.55
Illite (Clay Minerals)	$K(1\text{-}1.5)\ Al_4SiAl(1\text{-}1.5)O_20(OH)_4$	1.54 - 1.61
Indian Yellow	$C_{19}H_{18}O_{11}Mg.5H_2O$	1.67
Indium Antimonide	InSb	4.3
Indium Phosphide	InP	3.42
Ink		1.5
Ink-orange		1.36
Intralipid		1.46
Iriduim	Ir	2.53
Iron	Fe	2.86
Iron Oxide (Nat. Magnetite)	Fe_3O_4	2.42
Iron Ii Oxide (Nat. Wuestite)	FeO	2.32
Iron III Oxide (Nat. Hematite)	$Fe_2\ O_3$	2.94 - 3.22
Iron II Sulphate (Heptahydrate, Nat. Melanterite) (Pentahydrate, Nat. Siderotil) (Tetrahydrate)	 $FeSO_4.7H_2O$ $FeSO_4.5H_2O$ $FeSO_4.4H_2O$	 1.471 - 1.486 1.526 - 1.542 1.533 - 1.535
Iron III Sulphate (Enneahydrate, Nat. Coquimbite)	$Fe_2(SO_4)_3$ $Fe_2(SO_4)_3.9H_2O$	1.814 1.552 - 1.558
Iron Sulphide (Nat. Marcasite, Pyrite, Pyrrhotite)	FeS_2	1.56
Iso - Octane	$(CH_3)_3C,CH_2,CH(CH_3)_2$	1.3914
Isopar G		1.42
Isopar M		1.436
Isoparaffin		1.429

Compound	Formula	Refractive index
Isopropyl Alcohol	$(CH_3)_2CHOH$	1.377-1.378
Isopropyl Myristate		1.434-1.437
Jojoba		1.465
Kalinite (Potassium Aluminium Sulphate)	$KAl(SO_4)_2.12H_2O$	1.429 - 1.456
Kaolinite (China Clay)	$Al_4\ Si_4\ O_{10}\ (OH)_8$	1.533 - 1.570
Kieserite (Magnesium Sulphate)	$MgSO_4.H_2O$	1.52 - 1.58
Lactose	$C_{12}H_{22}O_{11}.1H_2O$	1.54
Lanthunum Fluoride	LaF	1.60
Latex Rubber		1.51
Laumontite		1.5148
Lead	Pb	2.01
Lead Carbonate (Cerussite)	$PbCO_3$	1.8036 - 2.0786
Lead Chloride	$PbCl_2$	2.217
Lead Chromate (Crocoite)	$PbCrO_4$	2.29 - 2.66
Lead Dioxide	PbO_2	2.3
Lead Fluoride	PbF_2	1.75
Lead Glass (20% lead content)		1.54
Lead Molybdate (Nat. Wulfenite)	$PbMoO_4$	2.283 - 2.403
Lead Oxide (Litharge)	PbO	2.665 - 2.535
Lead Oxide (mono)	PbO	2.51-2.71
Lead Oxide (minim)	Pb_3O_4	2.51-2.71
Lead (red) (Lead Oxide Pigment)	PbO	2.420
Lead Sulphate (Anglesite) (Nat. Lanarkite)	 $PbSO_4$ $PbSO_4PbO$	 1.82 - 1.894 1.93 - 2.02
Lead Sulphide (Galena)	PbS	3.921
Lead (white) (Basic Carbonate) (Hydro-cerussite, Cerussite)	 $2PbCO_3.Pb(OH)_2$ $PbCO_3$	 1.94 - 2.09 1.804 - 2.078
Lead (white) (Basic Sulphate, Lanarkite)	$PbSO_4.PbO$	1.930 - 2.02
Leather Dust		1.54

Compound	Formula	Refractive index
Lemon Oil		1.474-1.476
Lepidolite (Mica)	$KI_2(Li,Al)_{5-6}\ Si_{6-7}Al_{2-2}O_20(OH,F)_4$	1.525 - 1.587
Levyn		1.498
Limonene (Opticlear)		1.470
Linseed Oil		1.4782
Liquid Paraffin (Light)		1.4680
Lithium Carbonate	Li_2CO_3	1.567
Lithium Fluoride	LiF	1.3915
Lithium Mica (Lepidolite)	$K_2(Li,Al)_{5-6}\ Si_{6-7}Al_2{}_{-1}O_{20}\ (OH,F)_4$	1.525 - 1.587
Lithium Mica		1.554 - 1.587
Lithium Oxide	Li_2O	1.644
Lithopone (Zinc Sulphide a Nat. Wurtzite) (Zinc Sulphide b Nat. Sphalerite)	ZnS	 2.356 - 2.378 2.368
Lodestone (Magnetite)	Fe_3O_4	2.420
Macrogol 300 (Polyethylene Glycol 300)		1.462-1.466
Magnesite (Magnesium Carbonate)	$MgCO_3$	1.563 - 1.7
Magnesium Carbonate (Magnesite)	$MgCO_3$	1.563 - 1.7
Magnesium Chloride	$MgCl_2.6H_2O$	1.59-1.675
Magnesium Fluoride (Sellaite)	MgF_2	1.378 - 1.390
Magnesium Hydroxide	$Mg(OH)_2$	1.559-1.58
Magnesium Oxide (Periclase)	MgO	1.7350
Magnesium Sulphate Colourless, V	$MgSO_4.H_2O$	1.535
Magnesium Sulphate Colourless, IV, V	$MgSO_4.7H_2O$	1.455
Magnesium Sulphate (Epsomite, Epsom Salt)	$MgSO_4$ $MgSO_4.7H_2O$	1.56 1.433 - 1.461
Magnetite (Iron Oxide, Hematite)	Fe_3O_4	2.42
Malachite	$Cu_2\ (OH)_2(CO_3)$	1.655 - 1.909
Manganese	Mn	2.52
Manganese Blue	$BaMnO_4 + BaSO_4$	1.65
Manganese Carbonate	$MnCO_3$	1.817

Compound	Formula	Refractive index
Manganese Dioxide	MnO_2	2.4
Manganese Oxide (Manganosite)	MnO	2.16
Manganese Oxide (OUS)	MnO	2.16
Manganese Oxide	Mn_3O_4	2.46
Manganese Sulphate	$MnSO_4.4H_2O$	1.508
Manganese Violet	$(NH_4)2Mn_2(P_2O_7)_2$	1.67 - 1.75
Marcasite (Iron Di-sulphide)	FeS_2	1.87
Methanol	CH_3OH	1.33
Methylmethycrylate		1.48-1.50
1 - Methyl Naphthalene	$CH_3C_{10}H_7$	1.62
Methyl Salicylate		1.535-1.538
Mesolite		1.506
Mica (Muscovite) (Paragonite) (Phlogopite) (Biotite) (Lepidolite)	see individual compounds	 1.552 - 1.616 1.564 - 1.609 1.530 - 1.637 1.565 - 1.696 1.525 - 1.587
Microcline (Feldspar)	$KAlSI_3O_8$	1.514 - 1.539
Miglyol (Coconut Oil)		1.4493
Milled Glass		1.55
Milk Fat		1.46
Milk Serum		1.34
Millerite (Nickel Sulphide)	NiS	1.81
Minium (Lead Sulphide)	Pb_3O_4	2.40 - 2.44
Molybdate, Orange	$Pb(Mo,S,Cr,P)O_4$	2.55
Molybdenum	Mo	3.71
Monazite (cerium (III) Orthophosphate)	$(CeLaTh)PO_4$	1.774-1.851
Montmorillonite (Clay Minerals)	$(0.5Ca,Na)0.7(Al,MhFe)_4(Si,Al)_80_{20}(OH)_4$	1.48 - 1.64
Mordenite		1.4798
Muscovite (Mica)	$KAl_2\ Si_3\ AlO_{10}(OH,F)_2$	1.552 - 1.616
Mustard Oil		1.475

Compound	Formula	Refractive index
Natrolite		1.483
Neat's Foot Oil		1.464
Nickel	Ni	1.98
Nickel Oxide	NiO	2.182
Nickel Oxide (Bunsenite)	NiO	2.18
Nickel Sulphate	$NiSO_4$	1.48
Nickel Sulphate, Hexahydrate	$NiSO_4.6H_20$	1.511
Niobium	Nb	1.80
Nutmeg Oil		1.472-1.488
Nylon		1.53
Ochre, Yellow (Goethite)	$Fe_2O_2.H_2O$	2.0 - 2.4
Olea Europa Sativa (Olive Oil)		1.4679
Oligoclase (triclinic)	$([NaSi]0.9\text{-}0.7[CaAl]0.1\text{-}0.3)AlSi_2O_8$	1.533 - 1.552
Olive Oil (Olea europa sativa)		1.4679
Orange Oil		1.472-1.476
Orange Pigments		2.593 (average)
Orthoclase (Feldspar)	$KAlSi_3O_8$	1.518 - 1.539
Osmium	Os	3.88
Palladium		1.80
Palm Oil		1.4578
Palm-kernel Oil		1.4569
Paragonite (Mica)	$NaAl_2Si_3AlO_{10}(OH)_2$	1.564 - 1.609
Paraffin		1.43
Paraffin Wax		1.446
Paraldehyde		1.403-1.406
Peanut Oil		1.4691
Peppermint Oil		1.460-1.467
Periclase (Magnesium Oxide)	MgO	1.7350
Perspex		1.495
Phlogopite (Mica)	$KMg_3AlSi_3O_{10}(OH,F)_2$	1.530 - 1.637
Phillipsite		1.498
Phosphorous (yellow)	P_4	2.144

Compound	Formula	Refractive index
Phthalocyanine Blue (Copper phthalocyanine)		1.38
Phthalocyanine Green (Chloro-copper phthalocyanine)		1.40
Phytomenadine (Vitamin K1)		1.526-1.528
Pigments (Red) (Blue)		(averages) 2.522 1.63
Platinum	Pt	4.50
Poly (1,2 - Butadiene)		1.50
Poly (2 - Vinyltetrahydrofuran)		1.55
Poly (2 - Vinylthiophene)		1.6376
Polycarbonate		1.60
Pollens & Spores		1.5
Polyester Resin		1.523 - 1.54
Polyethylene (Low Density)		1.50-1.54
Polyethylene (Med. Density)		1.52-1.54
Polyethylene (High Density)		1.54
Polymethylmethacrylate		1.4760
Polypropylene		1.49
Polystyrene		1.59-1.6
Polystryene Acrylonitrile		1.56 - 1.57
Polytetrafluoroethylene (PTFE)		1.30 - 1.40
Polytrifluorochloroethylene		1.43
Polyvinyl Acetate (PVA)		1.395
Polyurethane		1.5 - 1.6
Polyvinylchloride (rigid) (PVC)		1.54
Polyvinylchloride (Non-rigid) (PVC)		1.50 - 1.54
Poppy-seed Oil		1.4685
Potash Alum (Potassium Aluminium Sulphate)	$KAl(SO_4)_2.12H_2O$	1.429 - 1.456
Potassium Aluminium Sulphate Nat. Kalinite (Potash Alum)	$KAl(SO_4)_2.12H_2O$	1.429 - 1.456
Potassium Bromide	KBr	1.55
Potassium Carbonate (Pearl ash)	K_2CO_3	1.531

Compound	Formula	Refractive index
Potassium Chromate	K_2CrO_4	1.726
Potassium Nitrate	KNO_3	1.504
Potassium Phosphate	KH_2PO_4	1.50
Potassium Silico Fluoride	K_2SiF_6	1.399
Potassium Iodide	KI	1.677
Potassium Chloride (Sylvite)	KCl	1.49
Propan-2-ol (IPA)	$(CH_3)_2CHOH$	1.39
Propylene Glycol	$CH_3CH(OH)CH_2OH$	1.431-1.433
Prussian Blue	$Fe[Fe(CN_6)]_3$	1.56
Pumice (Volcanic Glass)	[Na,K,Al]	1.500
PVC		1.53
PVT		1.5500
Pyrolusite (Manganese Oxide)	MnO_2	2.4
Pyrope (Garnet)		1.714
Pyrrhotite (Iron Sulphide)	Fe(1-0.8)S	1.56
Quartz		
(Chalcedony, Cristobalite, Flintsilica, Silicon Dioxide, Tridymite	SiO_2	1.544 - 1.553
Quinacridone Violet	$C_20H_{12}O_2N_2$	2.02 (average)
Rapeseed Oil		1.4706
Red Lead	Pb_3O_4	2.42
Red Pigments		2.522 (average)
Resins - See ‘epoxy’		
Resin (Cyclic Ketone)		1.60
Rhodium	Rh	2.14
Rhodochrosite (Manganese Carbonate)	$MnCO_3$	1.816 - 1.597
Rice Bran (Refined)		1.469
Rocksalt (Halite, Sodium Chloride)	NaCl	1.544
Rubber Gum (Soft / Hard)		1.33 - 1.540
Ruby (Corundum)	Al_2O_3	1.759 - 1.763
Ruthenium	Ru	4.8
Rutile (Titanium Dioxide)	TiO_2	2.605 - 2.901

Compound	Formula	Refractive index
Safflower Oil		1.462
Sardine Oil		1.4660
Sapphire (Corundum)	Al_2O_3	1.767 - 1.772
Saw Dust & Wood Flour		1.53
Scolecite		1.5156
Selenium	Se	2.8 (approx)
Selenium Glass		2.6 (approx)
Sesame Oil		1.4646
Sienna, Burnt	Fe_2O_3	1.85
Sienna, Raw (Goethite)	$Fe_2O_3.H_2O$	1.87 - 2.17
Silica (Crisobalite) (Quartz) (tridymite)	SiO_2	 1.487 1.544 1.469
Silicon	Si	3.5 (approx)
Silicon Carbide	SiC	2.64 - 2.65
Silicon Dioxide (Nat. Cristobalite) (Nat. Lechatelierite) (Nat. Tridymite) (Nat. Quartz)	SiO_2	 1.484 - 1.487 1.4588 1.469 - 1.471 1.544 - 1.533
Silicon Nitride	Si_3N_4	2.02
Silicon Oil		1.4030
Silver	Ag	0.2
Silver Bromide (Bromyrite)	AgBr	2.235
Silver Chloride (Cerargyrite)	AgCl	2.071
Silver Cyanide	AgCN	1.685 - 1.940
Silver Iodide (Iodyrite)	AgI	2.21
Silver Nitrate	$AgNO_3$	1.729 - 1.788
Soap (Powdered)		1.500
Sodium Biborate (Borax)	$Na_2O.2B_2O_3.10H_2O$	1.469
Sodium Carbonate (White, Powder HYG)	Na_2CO_3.	1.500
Sodium Carbonate (White, V)	$Na_2CO_3.10H_2O$	1.500
Sodium Bicarbonate	$NaHCO_3$	1.500

Compound	Formula	Refractive index
Sodium Chloride	NaCl	1.5442
Sodium Chloride (colourless, V)	NaCl	1.520
Sodium (di) Silicate	$Na_2Si_2O_5$	1.5-1.51
Sodium Fluoride (Villaumite)	NaF	1.32
Sodium Hydrogen Carbonate (Sodium Bicarbonate)	$NaHCO_3$	1.50
Sodium Hydrogen Sulphite	$NaHSO_3$	1.526
Sodium Metaphosphate	$NaPO_3$	1.478
Sodium Metasilicate	Na_2SiO_2	1.520
Sodium Metal	Na	4.22
Sodium Nitrate	$NaNO_3$	1.336 - 1.587
Sodium Nitrate (colourless,IIIa)	$NaNO_3$	1.587
Sodium (ortho) Silicate	Na_4SiO_4	1.53
Sodium Silicofluoride	Na_2SiF_6	1.312
Sodium Sulphate	$Na_2SO_4.10H_2O$	1.396
Sodium Sulphate(colourless, IV, V, EFF)	$Na_2SO_4.10H_2O$	1.396
Sodium Sulphite	Na_2SO_3	1.515-1.565
Sodium Sulphate (Anhydrous)	Na_2SO_4	1.471-1.484
D-sorbitol (D-Gulcitol)		1.333
Soya Oil		1.465-1.475
Soybean Oil At 40°C (glycine soja)		1.4729
Spearmint Oil		1.484-1.491
Spessartite (Garnet)		1.80
Spores & Pollen		1.5
Sphalerite (Zinc Sulphide b)	ZnS	2.368
Spinel (Magnesium Aluminate)	$MgAl_2O_4$	1.71 - 1.72
SPS Clay		1.4600
Stannic Oxide	SnO_2	1.997
Starch (Amylum)	$(C_6H_{10}O_5)n$	1.53
Stilbite		1.4983
Strontium Carbonate	$SrCO_3$	1.664
Strontium Oxide	SrO	1.810

Compound	Formula	Refractive index
Strontium Sulphate	$SrSO_4$	1.624
Strontium Titanate	$SrTiO_3$	2.39
Strontium Yellow	$SrCrO_4$	2.01
Sulphur	S_8	1.957
Sucrose (saccharose)	$C_{12}H_{22}O_{11}$	1.538
Sugars - See Sucrose		
Sunflower-seed Oil		1.4694
Sylvine	KCl	1.49050
Sylvite (Potassium Chloride)	KCl	1.49
Talc	$3MgO,4SiO_2,H_2O$	1.589
Tantalum	Ta	1.70
Tartaric Acid		1.49
Tea Dust		1.530
Terpeneless Lemon Oil		1.475-1.485
Tetrachloromethane	CCl_4	1.46
Tetrahydrofuran (THF)	$CH_2.(CH_2)_2.CH_2O$	1.41
Thallium Bromide	TlBr	2.40 - 2.8
Thallium Bromide-Thallium Chloride	$TlBr\text{-}TlCl_3$	2.33
Thallium Bromide-Thallium Iodide	TlBr-TlI	2.57
Thallium Chloride	$TlCl_3$	2.33
Theobroma Oil (Cocoa Butter)		1.456-1.458
Thomasonite		1.5225
Tin IV Chloride	$SnCl_4$	1.512
Tin Iodide	SnI_2	2.106
Tin IV iodide	SnI_4	2.106
Tin IV Dioxide (Nat. Cassiterite)	SnO_2	1.997 - 2.093
Titanium	Ti	2.15
Titanium Barium White	TiO_2 25%, $BaSO_4$ 75%	1.7-2.5
Titanium Calcium White	TiO_2 25%, $CaSO_4$ 75%	1.8-2.0
Titanium Dioxide (Anatase) (Rutile)	TiO_2	 2.493 - 2.554 2.616 - 2.903

Compound	Formula	Refractive index
Titanium Oxide (Anatase) Brown or Black, II	TiO_2	2.49 - 2.554
Titanium Oxide (Brookite) Brown, I, Black, IV	TiO_2	2.586
Titanium Oxide (Rutile) Colourless (if pure), Brown II	TiO_2	2.56 - 2.90
Titanium Dioxide + Calcium Sulfate	TiO_2 +$CaSO_4$	1.98 - 2.605
Tobacco Dust		1.53
Toluene	$C_6H_5CH_3$	1.49
Toners		1.42 - 2.42
Tri Aluminate	$Ca_3Al_2O_6$ or $3CaOAl_2O_2$	1.710
Tri Aluminate Hexahydrate	$3CoOAl_2O_3GH_2O$	1.603
Tri Calcium Phosphate	$Ca_3(Po_4)_2$	1.627
Triethanolamine		1.482-1.485
1,1,1- Trichloroethane	CH_3CCL_3	1.49
Trichloroethylene	$CHCL:CCl_2$	1.48
Tridymite (Silicon Dioxide)	SiO_2	1.471 - 1.483
Tungstic Acid	H_2WO_4	2.24
Tungsten acid (ortho)	H_2WO_4	2.24
Turpeneless Orange Oil		1.461-1.473
Turpentine Oil		1.467 - 1.477
Ultramarine Blue	$Na_{8-10}\ Al_6Si_6O_{24}S_{2-4}$	1.51 - 1.63
Ultramarine Violet		1.56
Umber, Burnt	$Fe_2O_3 + MnO_2$	2.2 - 2.3
Umber, Raw	$Fe_2O_3 + MnO_2 + H_2O$	1.87 - 2.17
Urea-formaldehyde		1.54 - 1.56
Uvarovite (Garnet)		1.86
Van Dyke Brown (Bitumous earth)		1.62 - 1.69
Vanadium	V	2.35
Vanadium Pentoxide	V_2O_5	1.52
Vermilion	HgS	2.8 - 3.14
Violet Pigments		1.739 (average)

Compound	Formula	Refractive index
Viridian (Chromium oxide,transparent)	$Cr_2O_3.2H_2O$	1.82 - 2.12
Volasil 244		1.394
Volasil 245		1.394
Volasil 344		1.397
Volcanic Glass	Na,K,Al silicate	1.500
Vinyl Chloride Acetate		1.5-1.55
Water	H_2O	1.33
Waxes (Average)		1.458
Whale Oil		1.460
White Lead	$2PbCO_3.Pb(OH)_2$	1.94 - 2.09
White Pigments (Transparent)		1.566 (average)
White Pigments (Opaque)		2.132 (average)
White Spirit		1.43 - 1.44
Whiting (Chalk)	$CaCO_3$	1.510 - 1.645
Witherite (Barium Carbonate)	$BaCO_3$	1.529 - 1.677
Wood Flour		1.53
Wool, Human Hair		1.54 - 1.56
Wurtzite (Zinc Sulphide a)	ZnS	2.356 - 2.378
Xylene (1,2 - Dimethyl benzene)	$C_6H_4(CH_3)_2$	1.496
Yellow Pigments		2.187 (average)
Yttrium Molybdate	$Y_2(M0O_4)_3.\ 4H_2O$	2.03
Yttrium Sulphate	$Y_2(SO_4)_3$	1.55
Yttrium Sulphate (Octahydrate)	$Y_2(SO_4)_38H_2O$	1.543-1.576
Zea Mays (Corn Oil)		1.4734
Zeolite		1.5026 (average)
Zinc Ammonium Solenate	$Sn(Se0_4)(NH_4)_2.Se_{42}\ 6H_2O$	1.52 - 1.53
Zinc Bromate	$Zn(BrO_3)_2.6H_2O$	1.5452
Zinc Carbonate (Smithsonite)	$ZnCO_3$	1.618 - 1.818
Zinc Carbonate (White, IIIa)	$ZnCO_3$	1.818
Zinc Cesium Sulfate $6H_2O$	$ZnCe_3(SO_4)_3$	1.50 - 1.50
Zinc Chloride	$ZnCl_2$	1.68 - 1.71

Compound	Formula	Refractive index
Zincite (Zinc Oxide)	ZnO	2.01 - 2.02
Zinc (ortho) Phosphate	$Zn_3(PO_4)_2.4H_2O$	1.572-1.665
Zinc Oxide (Nat. Zincite)	ZnO	2.008
Zinc Oxide White, AM, III	ZnO	2.008
Zinc Selenide	ZnSe	2.631
Zinc Silicate (Hemimorphite)	$2ZnO.SiO_2.H_2O$	1.64 - 1.636
Zinc Sulfide (Wurzite) (Sphalerite) (Cleartran™)	ZnS	 2.356 - 2.378 2.368 2.368
Zinc White	ZnO	2.00, 2.02
Zinc Yellow	$4ZnO.4CrO_3.K_2O.3H_2O$	1.84 - 1.9
Zircon (Zirconium Orthosilicate)	$ZrSiO_4$	1.92 - 2.02
Zirconium		2.32
Zirconium Oxide (Nat. Baddeyelite)	ZrO_2	2.13 - 2.2
Zirconium Oxide White (pure), yellow-brown, V, H7.5	ZrO_2	2.19
Zirconium (ortho) Silicate	$ZrSiO_4$	1.92-2.02
Zirconium Silicate (Zircon)	$ZrSiO_2$	1.92 - 1.96
Zirconium Sulfide	ZrS_2	1.923 - 2.015
Zircosil		1.9700

Sample dispersion guide

Material	Dispersant	Additives	Ultrasonics
Albumen	Methanol		1 minute in ultrasonic bath
Albuterol	Iso-octane		1 minute in ultrasonic bath
Alkali Salts	cyclohexanol		
	n-butanal, n-butylamine, linseed oil	xylene	
Alumina (Al_2O_3)	Water (de-ion-ised optional)	None	None
	Water	Sodium Hexametaphos-phate	5 mins. in ultrasonic bath
	Water	Igepal CA-630	
	Water	Tetra-Sodium Pyrophosphate	15 mins. in ultrasonic bath
	Water	Daxad 11	2 mins. via probe plus 40% in ultrasonic bath continuously to tank.
Aluminium	Water	Igepal CA-630	
		Sodium Hexametaphosphate	5-10 mins. in ultrasonic bath
Aluminium Trihydrate	Water	Igepal CA-630	5 mins. in ultrasonic bath
Amylodipin Berylate	Sunflower oil		12 mins. in ultrasonic bath
Ammonium Perchlorate	Butyl Acetate		10 mins. in ultrasonic bath
Ammonium Phosphate	Acetone		
Amoxycillin	Dimethyldigol		

Material	Dispersant	Additives	Ultrasonics
Anthracite	Water	Trinatrium Phosphate or Perminal BX	
Antimony Oxide (Sb_2O_3)	Water	Igepal CA-630	3 mins. in ultrasonic bath
Antimony Trioxide	Water	Mix powder in neat Igepal CA-630 before diluting	30 secs - 2 mins. in ultrasonic bath
Arsenates	Water	Sodium Pyrophosphate	
Arsenious Oxide	Octyl Alcohol		
	Cyclohexanol		
	Liquid Paraffin	2% Fatty Acid	
Ash	Water	Sodium Pyrophosphate	
Atecortin	Liquid Paraffin		5 mins. in ultrasonic bath
Azodicarbonanide	IPA		5 mins. in ultrsonic bath
Barium Carbonate	Water	Sodium Hexametaphosphate	3 mins. in ultrasonic bath
Barium Hexaferrite ($BaFe_{12}O_{19}$)	Water		
Barium Strontium Carbonate	Water-Ethanol mixture		
Barium Sulphate	Water	Sodium Hexametaphosphate or Lissapol NX (Alkylphenol/ Ethylene Oxide condensate) non ionic.	
	Water-Methanol mixture		
Barium Titanate	Water	Igepal CA-630	5 mins. ultrasound by probe.
Barytes	Water	Sodium Hexametaphosphate or Sodium Pyrophosphate	
Bentonite	Propan-2-ol		
	Water	Make slurry in Sodium Hexametaphosphate solution	
Beryl	Water	Sodium Silicate or Sodium Hexametaphosphate	

Material	Dispersant	Additives	Ultrasonics
Blast furnace Slag	Water	Sodium Hexametaphosphate	
Boron Nitride	Water	Daxad 11	5 mins. in ultrasonic bath and 80% applied continuously to tank.
Bismalemide	Water	Igepal CA-630	15 mins. in ultrasonic bath
Bismuth Oxide ($Bi_2 O_3$)	Water	Igepal CA-630	5 mins. in ultrasonic bath
Boron	Water	Daxad 11	2 mins. in ultrasonic bath
Bronze Powder	Water	Igepal CA-630 + 10ml Acetone	4 mins. in ultrasonic bath at 80%, followed by 1 min. at 100% to tank.
	Water	10% triton X-100 and Acetone	None
	Hexane		
Brown Coal	Cyclohexanol + 10% Methanol phthalsaure-diaethylester		
Cadmium Sulphide	Water	Sodium Pyrophosphate	
	Ethylene Glycol		
Calcium Arsenate	1:1 Ethyl Alcohol : Water		
Calcium Carbonate	Water	Igepal CA-630	
	Water	Sodium Hexametaphosphate solution	50% in ultrasound applied continuously to tank.
	Propan-2-ol		
Calcium Compounds	Water	Sodium Hexametaphosphate	
Calcium Phosphate	Water	Sodium Pyrophosphate	
Calcium Oxide	Propan-2-ol		High powered ultrasonic probe.
	Ethylene Glycol		
Calcium Sulphate (Feldspar)	Water	Sodium Hexametaphosphate	
	Propan-2-ol		
Calomel	Cyclohexanol		
Carbon Black	Water	Igepal CA-630	5 mins. in ultrasonic bath

Material	Dispersant	Additives	Ultrasonics
(Graphite)	Water	Sodium Citrate	
(Activated)	Water		100% continuous ultrasound to tank.
	Chloroform		
	Concentrated/ saturated ammonium citrate solution		10 mins. in ultrasonic bath
Carbamazepin	Cyclohexane		Magnetically stir for 15-30 mins. or 2 mins. in ultrasonic bath
Carborundum	Water	Sodium Hexametaphosphate	
Casein	Water	Tween 80	
Cellulose Diacetate	95% Acetone/ Water		
Cellulose Powder	Benzene	Trinatrium Phosphate	
Cement	Ethanol		
Cerium Oxide	De-ionised water	Igepal CA-630	If necessary
	De-ionised water		2 - 5 mins. in ultrasonic bath
Ceramic	Water	Sodium Hexametaphosphate	2 mins. in ultrasonic bath
Ceramic Grog	Water	Sodium Hexametaphosphate	
Cerussite	Water	Sodium Hexametaphosphate	
Chalk	Water	Sodium Silicate	
	Water	Potassium Citrate	
	Acetone		
	Petroleum		
Chalk (precipitated)	Isopropanol		
Charcoal	Water	Sodium Oxalate, Sodium Linoleate or Sodium Pyrophosphate	
	Aqueous Ammonia		

Material	Dispersant	Additives	Ultrasonics
Chocolate	Sunflower Oil		
	Volasil 344		
Chromium	Water	Igepal CA-630	
Chromium Oxide	Water	Daxad or Igepal CA-630	10 mins. in ultrasonic bath
Clay	Water	Sodium Hexametaphosphate	10 mins. in ultrasonic bath
Clay (Bentonite)	Propan-2-ol		
Coal	Water	Calcium Chloride	
		Igepal CA-630	10 mins. in ultrasonic bath
	Ethanol		
	Cyclohexanol		
	1:1, Cyclohexa-nol : Methanol		
Cobalt Metal	Water	Igepal CA-630	100% continuously to tank.
Cobalt Oxide	Water	Igepal CA-630	5 mins. in ultrasonic bath
Coke	Water	Perminal or Sodium Linoleate	
	Isobutyl alcohol		
	Isopropyl alcohol	Calcium Chloride	
	1:1, Ethylene Glycol : Ethanol	Calcium Chloride	
Copper	Water	Igepal CA-630	
Copper Carbonate	Water		10 mins. in ultrasonic bath
Dolomite	Water	Igepal CA-630	
Diamond	Alcohol		
Digoxin	Sunflower Oil		5 mins. in ultrasonic bath
Diltiazem	Sunflower Oil		2 mins. in ultrasonic bath
Water based drilling muds	Saturated Salt solution + 10 to 15% Diethyl-ene Glycol, filtered		
Ferric Oxide	De-ionised water	Ammonium citrate	5 mins. in ultrasonic bath

Material	Dispersant	Additives	Ultrasonics
Feldspar	Water	Sodium Hexametaphosphate	
Fluoxetine HCl	Sunflower oil		
Fly Ash	Propane-2-ol (IPA) Acetone Water		10 mins. in ultrasonic bath
Fondant	90% Methanol/ Water		
Furosemide	Sunflower Oil		2 mins. in ultrasonic bath
Garnet	Water	Dispex	
Gelatin	Ethanol		
Gentamicin Sulphate	Chloroform		
Glass Powder	Water	Lissapol NX (Alkylphenol / Ethylene Oxide Condensate) non ionic.	
Glass Spheres	0.1% sodium hexametaphosphate solution		
Graphite	Water	Igepal CA-630	If necessary
Gypsum ($CaSO_4 2H_2O$)	Water	1% Sodium Hexametaphosphate	
Haematite	Water		
Hydrated Lime	Ethanol Isopropanol		
Hydrocortisone Acetate	Saturated Solution in Water		
Hymecromone	Water	Igepal CA-630	
Ibuprofen	Deionised water	Igepal CA-630	
Ilmenite	Water		
Ink	Benzyl Alcohol		
Ion Exchange resin	Water		
Fe Si B	Water	Daxad II	In ultrasonic bath + 80% ultrasound applied continuously to tank

Material	Dispersant	Additives	Ultrasonics
Iron Oxide (Fe_2O_3)	Water	Igepal CA-630	
	Tetrahydrofuran		
Iron Oxide (red)	Water	Ammonium Citrate	5 mins. in ultrasonic bath
Kaolin	Water	Sodium Silicate or Sodium Pyrophosphate	
	Water and a few drops of Ammonia		
Kieselguhr	Water		
Lactose	Propan-2-ol or Ethanol		
Latex (Pre-dispersed)	Dilute Ammonia solution		
	Water		
Lead	Acetone		
	Water		
	Cyclohexanol		
	Isoamylalcohol		
Lead Cyanamide	Water	Sodium Pyrophosphate	
Lead Monoxide	Xylene		
Lead Oxide	Water	Sodium Pyrophosphate	
Lead Pigments	Water	Sodium Pyrophosphate	
Lead (Red)	Paint prepared in Linseed Oil and dispersed in White Spirit (Aluminium Stearate).		
Lignite	Cyclohexanol + 10% Methanol		
	Isobutyl Alcohol		
	Diethyl Ester or Phthalic Acid		
Limestone (CaO)	Propan-2-ol		2 mins. in ultrasonic bath
Lithopone	Water	Dispersal T	
	33% Aqueous Glycerol		

Material	Dispersant	Additives	Ultrasonics
Magnesite	Ethylene Glycol		
Magnetite	Water / Ethanol / Methanol / Nitrobenzene		
Magnesium (Mg)	Water Acetone		
Magnesium Carbonate	Acetone		2 mins. in ultrasonic bath
Magnesium Hydroxide	Water	Dispex	5 mins. using ultrasonic probe
Manganese Carbonate	Water	Igepal CA-630	3 mins. in ultrasonic bath
Manganese Dioxide	Water	Sodium Hexametaphosphate	5 mins. in ultrasonic bath
Marzipan	Hot Water		
Metallic Oxides	De-ionised water		
Methyl Methacrylate	Water		
Mica	Water	Igepal CA-630	2 - 5 mins. in ultrasonic bath
Milk Powder	Volasil 344 Hot Water Water	 Igepal CA-630	 10 mins. in ultrasonic bath 5 mins. in ultrasonic bath
Molybdenum	Ethylene Glycol		
Molybdenum Oxide	Ethylene Glycol		
Molochite	Water	Sodium Hexametaphosphate	
Moulding Sand	Water	Sodium Hydroxide	
Nedocromil Sodium	Dimythyldigol		10 mins. in ultrasonic bath
Nickel	Rape Oil + Acetone Aqueous Glycerol Cyclohexanol + 10% Acetone		
Nickel Powder	Ammonium Citrate solution		
Nickel Zinc Ferrite	Ammonium Citrate solution		5 mins. in ultrasonic bath

Material	Dispersant	Additives	Ultrasonics
Organic Powders	Isobutyl Alcohol and Diethyl		
	Phthalate mixtures		
	Octyl Alcohol		
	Isoamyl Alcohol		
Paint Pigment (Sicomin red) Lead based	Water		100% ultrasound applied continuously to tank.
(Monolite Blue)	Water	Igepal CA-630	
Paracetamol	Hexane		
Paracetamol Metoclopramide Paramet Suspension	Water	Igepal CA-630 10%	
Paraffin Wax	Water	Igepal CA-630	
Pentoxifyline	Liquid Paraffin		2 mins. in ultrasonic bath
Phosphate Ores	Water	Sodium Hexametaphosphate	
Phosphor (Red)	4% conc. in Methylated Spirits		
Phosphorous	Water	Potassium Silicate or Potassium Silicate + 0.02% Daxad 23	
Phosphorous (red)	Water	Igepal CA-630	
Pigments	Water	Sodium Pyrophosphate	
	Isopropanol		
Plaster	Water	Potassium Citrate	
	Alcohol-Glycol	Potassium Citrate	
Platinum	Water	Igepal CA-630	2 mins. in ultrasonic bath
Polyamide	Water	Igepal CA-630	
Polyester AlSi	Water	Daxad 11:Igepal CA-630, 1:1 mixture	
Polymethylmetha - crylate	50% Glycerol and water		
Polyvinyl Acetate emulsion	Water		

Material	Dispersant	Additives	Ultrasonics
Polyvinyl Polypropyldine (PVPP)	Water		
Polyvinyl Chloride	Water	Igepal CA-630	
	Water	Ethanol	
Potasium Nitrate	Ethanol		
Potassium Perchlorate	Ethanol		
Prednisolone	Water		
Procaine Penicillin	Hexane		
Protenecid	Water	Igepal CA-630	
PTA (Purified Terephthalic Acid)	Water	Igepal CA-630	
Pulp	Water	Sodium Silicate	
Pumicite	Water		
PVC	Water	Ethanol	
Polytetraflouroethylene (PTFE)	Water	Igepal CA-630	
Polyvinyl Polypropylidine (PVPP)	Water		
Quartz	Water		
Red Lead	Ethanol		2 mins. in ultrasonic bath
Salbutamol	Sunflower oil		5 mins. in ultrasonic bath
Salbutamol Sulphate	2,2,4-Trimethyl-pentane		Stir magnetically for 5-10 mins.
Sand	Water	Sodium Silicate	
	Butyl Phthalate + Alcohol		
Sewage	Water		
Shales	Alcohol	Calcium Chloride	
Silicates	Water	Sodium Pyrophosphate	
Silicon Carbide	Water	Daxad 11	2 mins. in ultrasonic bath and 100% ultrasound applied continuously to tank
Silicon Dioxide	Water		
Silicon Metal			
Powder	Water		

Material	Dispersant	Additives	Ultrasonics
Silicon Pigments	Toluene		
Silicone Oil Emulsion	Water		
Silver solpadizzine	IPA		
(Quartz) (SiO_2)	Water		4 mins. via ultrasonic probe plus 100% applied continuously to tank.
Silica (Fumed)	Propan-2-ol		
Silica Gel	Water	Two drops 50% calgon	5 mins. in ultrasonic bath
Silicon	Water	Igepal CA-630	
Silicon Nitride	Water	Igepal CA-630	
Sillimanite	1:1, Water : Ethyl Alcohol		
	Water	Sodium Pyrophosphate	
Silver Metal Powder	1:3, Triethanolamine : water	Igepal CA-630	
Slag (Cement)	Isopropanol		
	Water		
Sodium Azide	Cyclohexane		
Sodium Bicarbonate (Sodium Hydrogen Carbonate)	Saturated solution of IPA (Propan-2-ol)		2 mins. in ultrasonic bath
Sodium Carbonate	Ethanol		
Sodium Laurate	Water	Igepal CA-630	
Sodium Perborate	Water		
Soils & Clays	Water	Sodium Oxalate	
	Butyl Phthalate + Alcohol		
Solder	Methanol		
Sorbitol	Volasil 344		
Starch	Water		
Steel Powder	Water	Lissapol NX (Alkylphenol/Ethylene Oxide condensate) non-ionic.	

Material	Dispersant	Additives	Ultrasonics
Sugar	Isobutyl Alcohol		
	Diethyl Ester of Phthalic Acid		
	Isoamyl Alcohol		
Sulphides	Ethylene Glycol		
Sulphur	Water	Igepal CA-630	5 mins. in bath
Talc	Water	Igepal CA-630	100% continuously applied to tank.
	Water	Sodium Hexametaphosphate	1 minute in ultrasonic bath
	Ethanol		5 mins. in ultrasonic bath
Tea	Water		2 mins. in bath plus 50% ultrasound continuously applied to tank.
Tea whitener	Water		2 mins. via probe
Teflon	Water	Igepal CA-630	
Tin Oxide	Water	Sodium Hexametaphosphate	1 minute in ultrasonic bath
Titanium	Water	Igepal CA-630	
Titanium Diboride	De-ionised water	Daxad II	
Titanium Dioxide	Deionised water	Daxad 11	10 mins. via probe.
	Water	Dispex	2 mins. via probe.
	Butanone(MEK)		10 mins. in ultrasonic bath
Toner Jet-Milled	Methanol		
Tri-calcium Phosphate	Water		
Tungsten Carbide	Water	Daxad 11	1 minute in ultrasonic bath
Uranium Oxides	Aqueous Glycerol		
	Iso-butanol		
	Water	Sodium Hexametaphosphate	
Verapranic HCl	Sunflower oil		5 mins. in ultrasonic bath
Yttrium Oxide (Yttria) Y_20_3	Water	Sodium Hexametaphosphate	1 minute in ultrasonic bath

Material	Dispersant	Additives	Ultrasonics
Yttrium Hydroxy Carbonate $Y(OH)CO_3$	Propan-2-ol (IPA)		10 mins. via probe.
Zeolite	Water		2 mins. in ultrasonic bath
Zinc	Ethanol		
	Butanol		
	Acetone		
Zinc Hydroxystannate	Water	Igepal CA-630	
Zinc Oxide	Ethylene Glycol		2 mins. in ultrasonic bath
	Water	Sodium Hexametaphosphate	1 minute in ultrasonic bath
	Water		50% ultrasound applied continuously to tank.
	Water	Igepal CA-630	3 mins. in ultrasonic bath
	Acetone		10 mins. in ultrasonic bath
Zircon	Water	Orotan Sn	10 mins. in ultrasonic bath
Zirconium	Water	Igepal CA-630	1 minute in ultrasonic bath
Zirconium Oxide	Water		1-2 mins. in ultrasonic bath
	Water	Daxad 11	1-2 mins. in ultrasonic bath
	De-ionised Water	Orotan SN	10 mins. in ultrasonic bath
Zirconium Silicate	Water	Sodium Hexametaphosphate	1 minute in ultrasonic bath