THE **REFRACTIVE INDEX (nD)** SCALES FOR **REFRACTOMETERS**

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+ 49 (0 30) 41 70 72 - 0
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Schmidt + Haensch offers a number of different refractometers that can be used to determine the refractive index of a variety of samples.

Different temperatures result in different RIs (nD). In the attached table, the refractive indices of a variety of samples have been precisely determined, measured at 20°C and λ = 589 nm as reference measurement.

Should you miss a sample in the table or need a different temperature reference, please do not hesitate to contact us for further questions. We are also happy to consult on your measuring needs and RI determination.

SAMPLE	FORMULA	VALUE OF REFRACTIVE INDEX (nD) (20°C)
A		
Acetic acid	$(CH)_3COOH$	1.333-1.372
Acetic acid 30%		1.351
Aceton	C_3H_6O	1.358
Acetyltributylcitrate	$C_{20}H_{34}O_8$	1.442-1.445
Acryl glass	$C_5H_8O_2$	1.490
Acrylnitril	C_3H_3N	1.391
AdBlue® / Diesel Exhaust Fluid (DEF)	$(NH_2)_2CO$	1.383
Aloe extract		1.334
Alumina	Al_2O_3	1.760
Ammonia	$(NH)_3$	1.333-1.353
Ammonia-solution		1.367-1.377
Ammonium-chloride	$(NH)_4Cl$	1.333-1.377
Ammonium-sulfate	$(NH)_4$	1.333-1.397
Anethole	$C_{10}H_{12}O$	1.559-1.561
Anilin	$C_6H_5NH_2$	1.586
Antifreeze (GlysantinG40)		1.32-1.42
Antifreeze based on ethylene glycol		1.33- 1.431
Antifreeze based on propylene glycol		1.33- 1.431
Anise oil		1.552-1.561
Anisol	$C_{14}H_{18}O_3$	1.518
Apple	C_7H_8O	1.350
Asphalt / Bitumen	$C_4H_6O_5$	1.650

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SAMPLE	FORMULA	VALUE OF REFRACTIVE INDEX (nD) (20°C)
B		
Bariumchloride	$BaCl$	1.333-1.375
Basic solution, viscose		1.393-1.397
Bean jam		1.430
Beef curry		1.357
Beer		1.340
Benzol	C_6H_6	1.490
Benzyl alcohol	C_7H_8O	1.538-1.541
Benzyl benzoate	$C_{14}H_{12}O_2$	1.568-1.570
Benzyl nicotinate	$C_{13}H_{11}NO_2$	1.569-1.570
Bean, broccoli, blueberry, blackberry		1.345
Benzylbromide	C_7H_7Br	1.575
Benzylformiat	$C_8H_8O_2$	1.511
Bisabolol	$C_{15}H_{26}O$	1.493-1.499
Bitter fennel oil		1.528-1.539
Bitter-fennel herb oil		1.487-1.501
Borage oil		1.473-1.481
Boric acid	H_3BO_3	1.333-1.336
Brook mint		1.482-1.495
Bunker A / No. 2 fuel oil		1.490
Bunker C / No. 6 fuel oil		1.560
Butter		1.450
C		
Caesiumchloride	$CsCl$	1.330-1.416
Calciumchloride	$Ca(Cl)_2$	1.333-1.403
Calciumfluoride	CaF_2	1.430
Campherspiritus	$C_{10}H_{16}O$	1.372-1.374
Canned seasoning yogurt		1.366
Canned syrup		1.372
Canola oil		1.470
Caprolactam	CPL	1.315-1.5
Caramel and Schoko Topping		1.3329-1.53
Caraway oil		1.484-1.490

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SAMPLE	FORMULA	VALUE OF REFRACTIVE INDEX (nD) (20°C)
C		
Carbon disulfide	CS_2	1.630
Carrot		1.345
Cassia oil		1.600-1.614
Cauliflower, swede, paprika		1.342
Cesium chloride	CsCl	1.333-1.417
Cetearyl octanoate		1.444-1.448
Cetylstearylisononanoat		1.440-1.450
Cherry		1.345
Chili sauce		1.380
Cineol		1.456-1.460
Cinnamon leaf oil		1.527-1.540
Cinnamon oil		1.572-1.591
Citricacid	$C_6H_8O_7$	0.9922-1.1346
Citronella oil		1.463-1.475
Clofibrate	$C_{12}H_{15}ClO_3$	1.500-1.505
Clove oil		1.530
Cocoylcaprylocaprat		1.445
Cobaltous chloride	$CoCl_2$	1.333-1.380
Coconut oil		1.440
Cocoyl caprylocaprate		1.445
Codliver oil Type-A/B		1.477-1.484
Coffee		1.340
Coffee TDS		1.3313-1.37
Coke		1.350
Concentrated juice		1.430
Condensed milk		1.450
Cooking oil		1.480
Coppersulfate	$CuSO_4$	1.3306099-1.3689
Coriander oil		1.462-1.470
Corn soup		1.347
Creatinine	$C_4H_7N_3O$	1.333-1.349
Cupric sulfate	$CuSO_4$	1.333-1.367
Cutting oil emulsion		1.334
Cyclohexan	C_6H_{12}	1.426

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SAMPLE	FORMULA	VALUE OF REFRACTIVE INDEX (nD) (20°C)
D		
Dalmatian sage		1.457-1.473
Damascenon	C_6H_{12}	1.380
Decyl oleate	$C_{28}H_{54}O_2$	1.456-1.458
Dextran	$H(C_6H_{10}O_5)xOH$	1.333-1.349
D-Fructose		1.333-1.459
D-Glucose		1.333-1.439
Dibutyl adipate	$C_{14}H_{26}O_4$	1.435
Dibutyl phthalate (DBP)	$C_{16}H_{22}O_4$	1.490-1.495
Dichloromethane	CH_2Cl_2	1.423-1.425
Diesel oil		1.478
Diethyl phthalate	$C_{12}H_{14}O_4$	1.500-1.505
Diethylene glycol monoethyl ether	$C_6H_{14}O_3$	1.426-1.428
Diiodbenzol	$C_6H_4I_2$	1.718
Diiodmethan	CH_2I_2	1.743
Diiodopropan		1.642
Diisopropyl adipate	$C_{12}H_{22}O_4$	1.424
Dimercaprol	$C_3H_8OS_2$	1.568-1.574
Dimethicone 1000+		1.404-1.406
Dimethicon 350+		1.404-1.406
Dimethyl sulfoxide (DMSO)		1.478-1.479
Dimethylacetamide (DMAC)		1.435-1.439
Dimethylformamide (DMF)		1.3327-1.447
D-Mannitol	$C_6H_{14}O_6$	1.333-1.355
Disodium Ethylenediaminetetra-acetate (EDTA)		0.9922-1.0305
E		
Egg		1.355
Egg yolk		1.420
Electrical discharging liquid		1.357
Electrolyte		1.370
Emulsifying hydrophobic base gel		1.473-1.483
Endive, asparagus, pea, salat, tomato, onion		1.342
Epoxy		1.620
Ethanol	C_2H_6O	1.333-1.362

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SAMPLE	FORMULA	VALUE OF REFRACTIVE INDEX (nD) (20°C)
E		
Ethylenglycol	$C_2H_6O_2$	1.431
Ethylhexylglycerin	$C_{11}H_{24}O_3$	1.449-1.453
Eucalyptus oil		1.458-1.470
Eugenol	$C_{10}H_{12}O_2$	1.540-1.542
F		
Felosan		1.32-1.4204
Ferric chloride	$FeCl_3$	1.333-1.383
Flint glass		1.620
Formic acid	CH_2O_2	1.333-1.365
Formic acid 25%		1.352
Formic acid 85%		1.369
Formic acid 98%		1.371
G		
Gelatin liquid		1.348
Glucose syrup		1.463-1.495
Glycerin	C3H8O3	1.474
Glycerol	C3H8O3	1.470-1.475
Glycerol 85%		1.449-1.455
Glycerol diisostearate		1.462-1.468
Green tea		1.335
Grinding chemical liquid		1.334
H		
Hexetidine	$C_{21}H_{45}N_3$	1.461-1.467
Honey		1.520
Honey starch syrup		1.495
Human serum or plasma		1.333-1.361
Hydrochloracid	HCl	0.9922-1.1977
Hydrogen peroxide	H_2O_2	1.325244-1.41
Hydrophobic base gel		1.475-1.495
Hydroxyethyl salicylate	$C_9H_{10}O_4$	1.548-1.551

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SAMPLE	FORMULA	VALUE OF REFRACTIVE INDEX (nD) (20°C)
I		
Immersion oil		1.512
Inulin	$C_{6n}H_{10n+2}O_{5n+1}$	1.333-1.348
Iodbenzol	C_6H_5I	1.620
Iodnaphthalin		1.701
Isoeugenol	$C_{10}H_{12}O_2$	1.577
Isopropyl myristate	$C_{17}H_{34}O_2$	1.434-1.437
Isopropyl palmitate	$C_{19}H_{38}O_2$	1.436-1.440
J		
Japanese plum		1.340
Juniper oil		1.471-1.483
K		
Ketchup		1.385
L		
Lactic acid	$C_3H_6O_3$	1.333-1.417
Lactic acid bacteria beverage		1.360
Lactose	$C_{12}H_{22}O_{11}$	1.333-1.359
Lactulose-syrup		1.445-1.478
Latex in solvent		1.315-1.47
Lavender oil		1.455-1.466
Lead Nitrate	$Pb(NO_3)_2$	1.333-1.387
Lemon oil		1.473-1.476
Lime / Lemon		1.346
Linear alkylbenzene sulfonate acid	LAS-H	1.3231-1.52
Linear alkylbenzene sulfonate sodium salt	LAS-Na	1.3231-1.42
Lithium chloride	LiCl	1.333-1.399
M		
Macrogol-20-glycerolmonostearat		1.464–1.468
Macrogolglycerolcaprylocaprate		~1.400
Macrogolglycerololeate		1.470
Macrogolglycerolricinoleat		1.470-1.474
Macrogololeat		~1.466

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SAMPLE	FORMULA	VALUE OF REFRACTIVE INDEX (nD) (20°C)
M		
Magnesium-chloride	$MgCl_2$	1.333-1.415
Magnesium-fluoride	MgF_2	1.381
Magnesium-sulfate	$MgSO_4$	1.333-1.385
Maltose	$C_{12}H_{22}O_{11}$	1.333-1.357
Mandarin peel oil		1.474-1.478
Manganous-sulfate	$MnSO_4$	1.333-1.373
Marmelade / jam / jelly		1.460
Marshmallow syrup		1.440-1.455
Medium-chain triglycerides		1.440-1.452
Methanesulfonic acid	CH_4O_3S	1.429-1.430
Methanol	CH_3OH	1.333-1.340
Methanol in dimethylformamide (DMF)		1.4305
Methyl salicylate	$C_8H_8O_3$	1.535-1.538
Methylene Iodide	CH_3I	1.744
Milk		1.350
Mint oil		1.456–1.470
Miso soup		1.336
Molasses		1.470
Monobromnaphthalin	$C_{10}H_7Br$	1.650
Mountain pine oil		1.474-1.480
Muscatel Sage		1.456-1.466
N		
Natural rubber		1.540
Nectar		1.360
Neroli oil		1.464-1.474
n-Heptan	C_7H_{16}	1.388
Nickel nitrate	$NiNO_3$	1.315-1.47
Nickel sulfat	$NiSO_4$	1.333-1.345
Nikethamide		1.524-1.526
Nitric acid	HNO_3	1.333-1.387
N-Methylpyrrolidone	C_5H_9NO	1.469
N-Methyl-2-pyrrolidone (NMP)		1.33-1.47
n-Octan	C_8H_{18}	1.398
Nutmeg oil		1.457-1.485

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SAMPLE	FORMULA	VALUE OF REFRACTIVE INDEX (nD) (20°C)
O		
Octyldodecanol	$C_{20}H_{42}O$	1.453-1.457
Oechsle	Oe	1.32-1.49
Oil		1.473-1.478
Oleic acid	$C_{18}H_{34}O_2$	1.457-1.461
Oleyl oleate		1.464-1.466
Olive oil		1.468
Orange		1.348
Oxalicacid	$C_2H_2O_4$	0.9922-1.0355
P		
Paraffin	$C_6H_{12}O_3$	1.479
Paraldehyde		1.403-1.406
Pastry cream		1.400
Pentylene glycol	$C_5H_{12}O_2$	1.435-1.440
Peppermint oil		1.457-1.467
Perfluorodecalin	$C_{10}F_{18}$	1.315
Phenethyl alcohol	$C_8H_{10}O$	~1.532
Phenol	C_6H_6O	1.541
Phenoxyethanol	$C_8H_{10}O_2$	1.537-1.539
Phenylnaphtalin	$C_{20}H_{14}O_4$	1.664
Phosphoric		1.333-1.375
Phosphoric acid	H_3PO_4	1.3306099-1.3735
Phytomenadione	$C_{31}H_{46}O_2$	~1.526
Pine needle oil		1.465-1.480
Plain yogurt		1.345
Plant cell culture		1.334
Plastic eyeglasses ruby		1.760
Polyacrylmethacrylate	$C_5H_8O_2$	1.490
Polycarbonate		1.585
Polystyrene	$(C_8H_8)n$	1.580
Potassium		1.333-1.349
Potassium bicarbonate	$KHCO_3$	1.3306099-1.3595
Potassium bromide	KBr	1.333-1.391
Potassium carbonate	K_2CO_3	1.333-1.403

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SAMPLE	FORMULA	VALUE OF REFRACTIVE INDEX (nD) (20°C)
P		
Potassium chloride	KCl	1.333-1.367
Potassium chromate	K_2CrO_4	1.333-1.411
Potassium dichromate	$K_2Cr_2O_7$	1.333-1.352
Potassium dihydrogenphosphate	KH_2PO_4	1.330-1.345
Potassium ferricy anide	$K_3[Fe(CN)_6]$	1.333-1.387
Potassium fluoride	KF	1.3272-1.36678
Potassium hydrogenphosphate	K_2HPO_4	1.330-1.3445
Potassium hydroxide	KOH	1.330-1.4247
Potassium Iodide	KI	1.333-1.403
Potassium lactate	$C_3H_5KO_3$	1.402-1.405
Potassium nitrate	KNO_3	1.333-1.355
Potassium oxalate	$C_2K_2O_4$	1.333-1.351
Potassium phosphate	K_3PO_4	1.333-1.345
Potassium sulfate	K_2SO_4	1.333-1.345
Potassium thiocyanate	KSCN	1.333-1.475
Procaine hydrochloride	$C_{13}H_{20}N_2O_2$	1.333-1.483
Propofol	$C_{12}H_{18}O$	1.512-1.514
Propylene glycol	$C_3H_8O_2$	1.431-1.433
Propylenglycoldicaprylocaprate	$C_{19}H_{36}O_4$	1.439-1.442
Pudding		1.368
Purified terpentine oil		1.465-1.478
Purified water		1.332-1.334
Powdered alkaline detergent (Dirl LUM603)		1.3248-1.3672
Pyrrolidone		1.487-1.490
Q		
Quartz glass	SiO_2	1.460
R		
Refined almond oil		1.470-1.473
Refined apricot kernel oil		1.472
Refined corn oil		1.472–1.476
Refined evening primrose oil		1.476-1.480
Refined grape seed oil		1.474-1.477

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SAMPLE	FORMULA	VALUE OF REFRACTIVE INDEX (nD) (20°C)
R		
Refined jojoba wax		1.466
Refined macadamia oil		1.466-1.470
Refined olive oil		1.467-1.471
Refined peanut oil		1.468-1.473
Refined rapeseed oil		1.470-1.474
Refined safflower oil (Type1)		1.476
Refined safflower oil (Type2)		1.472
Refined sesamum oil		1.470-1.476
Refined soya oil		1.472-1.478
Refined sunflower oil		1.473-1.476
Refined sunflower oil containing oleic acid		1.470
Raspberry		1.345
Ricinus oil		1.480
Rosemary oil		1.464-1.473
S		
Salat		1.342
Saline		1.333
Sea water		1.333-1.353
Sesame oil		1.478
Sevoflurane	$C_4H_3F_7O$	1.274-1.276
Silicone oil	$C_6H_{18}OSi_2$	1.406
Silicone solution		1.360
Silver nitrate	$AgNO_3$	1.333-1.391
Sodium acetate	$C_2H_3NaO_2$	1.333-1.375
Sodium bicarbonate	$NaHCO_3$	1.333-1.340
Sodium bromide	NaBr	1.333-1.400
Sodium carbonate	Na_2CO_3	1.333-1.367
Sodium chloride	NaCl	1.333-1.379
Sodium diatrizoate	$C_{11}H_8I_3N_2NaO_4$	1.333-1.417
Sodium dichromate	$Na_2Cr_2O_7$	1.333-1.513
Sodium ferrocyanide	$Na_4[Fe(CN)_6]$	1.333-1.373
Sodium dihydrogenphosphate	NaH_2PO_4	1.330-1.3869
Sodium hydrogenphosphate	Na_2HPO_4	1.330-1.3433

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SAMPLE	FORMULA	VALUE OF REFRACTIVE INDEX (nD) (20°C)
S		
Sodium hydroxide	NaOH	1.333-1.433
Sodium hypochlorite	NaOCl	1.333-1.380
Sodium molybdate	Na_2MoO_4	1.333-1.349
Sodium nitrate	$NaNO_3$	1.333-1.379
Sodium phosphate		1.3306-1.3532
Sorbital solution 70% non crystalizing		1.455-1.465
Sodium sulfate	Na_2SO_4	1.333-1.355
Sodium tartrade	$C_4H_4Na_2O_6$	1.333-1.381
Sodium thiosulfate	$Na_2S_2O_3$	1.333-1.423
Sodium tungstate	Na_2WO_4	1.333-1.430
Sorbitan and glycerolmonooleat		1.474-1.480
Sorbitan trioleate	$C_{60}H_{108}O_8$	1.473-1.477
Soy bean		1.430
Soy milk		1.350
Soy sauce		1.395
Spanish sage		1.457-1.473
Spike oil		1.461-1.468
Squalan	$C_{30}H_{62}$	1.450-1.454
Star anise oil		1.553-1.556
Starch	$C_6H_{10}O_5$	1.376
Stevia		1.3326-1.3334
Strontium chloride	$SrCl_2$	1.333-1.407
Styren	C_8H_8	1.546
Sucrose	$C_{12}H_{22}O_{11}$	0.9717-1.4512
Sulfuric acid	H_2SO_4	1.333-1.403
Sweet orange oil		1.470-1.476
T		
Tea tree oil		1.475-1.482
Tetrachlorethylene	C_2Cl_4	1.505
Tham	$C_4H_{11}NO_3$	1.333-1.397
Thyme oil	$C_{50}H_{82}O_4$	1.490-1.505
Toluol	C_7H_8	1.497
Tomato		1.342

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SAMPLE	FORMULA	VALUE OF REFRACTIVE INDEX (nD) (20°C)
T		
Trans-Decalin	$C_{10}H_{18}$	1.470
Triacetin	$C_9H_{14}O_6$	1.429-1.432
Trichloracetic acid	$C_2HCl_3O_2$	0.9922-1.2682
Trichlorfluormethan / Freon 11	CCl_3F	1.375
Triethyl citrate	$C_{12}H_{20}O_7$	1.440-1.446
Trolamine	$C_6H_{15}NO_3$	1.482-1.485
Tris(hydroxymethyl)methylamine	TRIS	1.3306-1.397
Turpentine oil beach Pine-Type	$C_{12}H_{20}O_7$	1.465-1.475
U		
Urea		1.333-1.403
Urine solida human		1.333-1.348
UrineSpecificGravity		1.332-1.349
V		
Valproic acid	$C_8H_{16}O_2$	1.422-1.425
Vinyl acetat	$C_4H_6O_2$	1.396
Virgin avocado oil / Refined avocado oil		~1.479
Virgin castor oil		~1.479
Virgin jojoba wax		1.466
Virgin linseed oil		1.478-1.482
Virgin olive oil		1.467-1.471
Virgin Safflower oil		1.476
Virgin wheatgerm oil		~1.475
W		
Water	H_2O	1.333
Watermelon, wineberry		1.350
X		
Xylen	C_8H_{10}	1.500
Z		
Zimtacetat		1.541
Zink sulfate	$ZnSO_4$	1.333-1.365

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α-Methyl-Zimtaldehyd	$C_{10}H_{10}O$	1.608
1,2,2-Trifluortrichlorethan / Freon 113	$C_2Cl_3F_3$	1.354
1,3-Butanediol	$C_4H_{10}O_2$	1.439-1.441
1-Bromonaphthalene	$C_{10}H_7Br$	1.657
1-Naphthaldehyd	$C_{10}H_7CHO$	1.652
1-Propanol	C_3H_8O	1.384-1.387
2-Propanol	C_3H_8O	1.384-1.387
2,4-Dichlortoluol	$C_7H_6Cl_2$	1.545
2-Ethylhexyl laurate	$C_{20}H_{40}O_2$	1.440-4.444
2-Ethylnapthalin	$C_{12}H_{12}$	1.600
2H-,3H-Perfluoropentan	$C_5H_2F_{10}$	1.300
2-Phenylethanethiol	$C_8H_{10}S$	1.560
2-Phenylethylchlorid	C_8H_9Cl	1.530
2-Propanol 10%	C_3H_8O	1.338-1.341
2-Propanol 20%	C_3H_8O	1.345-1.348
2-Propanol 30%	C_3H_8O	1.353-1.356
2-Propanol 40%	C_3H_8O	1.359-1.361
2-Propanol 50%	C_3H_8O	1.363–1.365
2-Propanol 60%	C_3H_8O	1.368–1.369
2-Propanol 70%	C_3H_8O	1.371–1.372
2-Propanol 80%	C_3H_8O	1.374–1.375
2-Propanol 90%	C_3H_8O	1.376–1.377

Can't find your sample type? - We are happy to determine refractive indexes for you. Please contact sales@schmidt-haensch.de