REFRACTOMETERS
PARAMETERS

Refractometers are versatile tools that are used in many areas to determine the composition and quality of fluids. The refractive index is a measure of how strongly light is refracted in a medium. Various other parameters can be derived or determined from the refractive index, depending on the application of the refractometer.

Parameters where refractometers are used, including percentages and per mille:

Measured parameter	Model	Measurement range	Refractive index
Brix	PCE-DRB 1	0 ... 90.00 %	1.3330 ... 1.5177 nD
	PCE-DRW 1	0.0 ... 50.0 %	
	PCE-DRP 1	0,0 ... 50,0 %	1.3330 ... 1.4200 nD
	PCE-DRH 1	0 ... 90.00 %	1.3330 ... 1.5177 nD
	PCE-DRW 2	0 ... 45.00 %	
Brix p2	PCE-DRP 2	0.00 ... 30.00 %	
Dextran	PCE-DRB 2	0 ... 10.6 %	1.3330 ... 1.5177 nD
Fructose	PCE-DRB 2	0 ... 68.9 %	1.3330 ... 1.5177 nD
Glucose	PCE-DRB 2	0 ... 59.9 %	1.3330 ... 1.5177 nD
Lactose	PCE-DRB 2	0 ... 16.5 %	1.3330 ... 1.5177 nD
Maltose	PCE-DRB 2	0 ... 15.6 %	1.3330 ... 1.5177 nD
Specific gravity (D20/20)	PCE-DRW 1	1.000 ... 1.130	
Coffee p 1	PCE-DRP 1	0.0 ... 25.0	1.3330 ... 1.4200 nD
Coffee p 2	PCE-DRP 2	0.00 ... 25.00	
Salinity	PCE-DRS 1	0 ... 28.0 % / 0 ... 280 ‰	1.3330 ... 1.3900 nD
	PCE-DRS 2	0 ... 100 ‰	1.3330 ... 1.3530 nD
	PCE-DRD 1	0 ... 28 %	1.3330 ... 1.4200 nD
	PCE-DRD 2	0 ... 280 ‰	1.3330 ... 1.4200 nD
	PCE-DRD 3	0 ... 28.5 %	1.3330 ... 1.4200 nD
Specific gravity	PCE-DRS 1	1.000 ... 1.070	1.3330 ... 1.3900 nD
	PCE-DRS 2	1.000 ... 1.070	1.3330... 1.3530 nD
Chloride content	PCE-DRS 2	0 ... 57 ‰	1.3330... 1.3530 nD
Water	PCE-DRH 1	38.0 ... 5.0 %	1.3330 ... 1.5177 nD
Bé	PCE-DRH 1	33.0 ... 48.0	1.3330 ... 1.5177 nD
% vol ap	PCE-DRW 2	0 ... 22.00 %	
Oechsle	PCE-DRW 2	3 ... 150	
KMW	PCE-DRW 2	0 ... 25.00	
Urea (NH2)2CO	PCE-DRU 1	0 ... 51.0 %	1.3330 ... 1.4056 nD
Cleaning agents	PCE-DRC 1	-40~0 °C	
"Antifreeze (ethylene glycol)"	PCE-DRC 1	-50~0 °C	
Propylene glycol	PCE-DRC 1	-50~0 °C	
Battery	PCE-DRC 1	1.000 ... 1.500 SG	
Ethylene glycol (v/v)	PCE-DRA 1	0 ... 60 %	

Measured parameter	Model	Measurement range	Refractive index
Ethylene glycol (°C)	PCE-DRA 1	-50~0 °C	
Propylene glycol (v/v)	PCE-DRA 1	0 ... 70 %	
Propylene glycol (°C)	PCE-DRA 1	-60~0 °C	
Acetic acid	PCE-DRF 2	0 ... 75 %	1.3270 ... 1.3770 nD
Calcium chloride	PCE-DRF 3	0 ... 41 %	1.3330 ... 1.4200 nD
Glycerin	PCE-DRF 4	0 ... 100 %	1.3330 ... 1.4740 nD
Hydrogen peroxide	PCE-DRF 5	0 ... 61 %	1.3330 ... 1.4650 nD
Potassium carbonate	PCE-DRF 6	0 ... 51 %	1.3330 ... 1.4650 nD
Potassium hydroxide	PCE-DRF 7	0 ... 21 %	1.3330 ... 1.3744 nD
Lithium hydroxide	PCE-DRF 8	0 ... 15 %	1.3330 ... 1.4641 nD
Methanol [45%]	PCE-DRF 9	0 ... 46 %	1.3330 ... 1.3290 nD
Magnesium chloride	PCE-DRG 1	0 ... 35 %	1.3330 ... 1.4650 nD
Sodium nitrate	PCE-DRG 2	0 ... 41 %	1.3127 ... 1.3870 nD
Ammonia	PCE-DRG 3	0 ... 35 %	1.3330 ... 1.3840 nD
Isopropyl alcohol	PCE-DRG 4	0 ... 81 %	1.3330 ... 1.4650 nD
Dimethylacetamide	PCE-DRG 5	0 ... 100 %	1.3270 ... 1.4472 nD
Dimethylformamid	PCE-DRG 6	0 ... 55 %	1.3260 ... 1.4039 nD
Dimethylformamide	PCE-DRG 7	0 ... 100 %	1.3260 ... 1.4320 nD
N-methyl-2-pyrrolidone	PCE-DRG 8	0 ... 100 %	1.3260 ... 1.4800 nD
Sodium hypochlorite	PCE-DRG 9	0 ... 18 %	1.3250 ... 1.4000 nD
Sodium hydroxide	PCE-DRG 10	0 ... 55 %	1.3250 ... 1.4410 nD

Main parameters

1. Refractive index (nD):

   The refractive index is the basic parameter measured by a refractometer and indicates the ratio of the speed of light in a vacu um to the speed of light in the medium.

Derived and specific parameters

2. Sugar content (Brix value):

   The Brix value indicates the mass per cent of sucrose in a solution and is often used in the food and beverage industry.

3. Concentration of solutions:

   Concentration of dissolved substances such as salts, proteins and other chemicals such as: acetic acid, calcium chloride, glycer in, potassium carbonate, lithium hydroxide, magnesium chloride, sodium nitrate, sodium hydroxide, dimethylformamide ...

4. Alcohol content:

   The alcohol content in alcoholic beverages can be determined using the refractive index.

5. Density:

   In some cases, the density of a liquid can be calculated indirectly via the refractive index.

6. Purity of fluids:

   The refractive index can be used to determine the purity of a fluid by comparing it with the known refractive index of the pure substance.

Application-specific parameters

7. Salinity:

   In marine biology and aquaristics, the salinity of the water is often measured with a refractometer.

https://www.pce-instruments.com/english/measuring-instruments/test-meters/refractometer-kat_40092.htm

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