



C3.3.3 REFRACTOMETRY

C3.3.3.1 Determination of the refractive index with the refractometer

Determination of the refractive index with the refractometer (C3.3.3.1)

Cat. No.	Description	C3.3.3.1
667 359	Laboratory refractometer	1
667 7977	Electronic Balance 440-3N, 200 g : 0.01 g	1
602 022	Beaker Boro 3.3, 100 ml, squat	2
665 997	Graduated pipette 10 ml	2
666 002	Pipetting aid	1
665 953	Dropping pipette, 7 x 150 mm, 10 pcs.	1
665 954	Rubber bulbs, 10 pcs	1
661 251	Flip-flap glass, 20 ml	10
661 243	Wash bottle PE 500 ml	1
671 9720	Ethanol, denaturated, 1 l	1
667 3551	Peltier-Thermostat PT30	1*
307 70	Tubing 8 mm Ø, 1 m, plastic	2*

* additionally recommended

Every liquid has a characteristic refractive index n_D . The refractive index of a mixture of two liquids is determined by the refractive index of the individual liquids and by their proportion in the mixture. If the refractive indices of the individual liquids are known, then their mixing proportion in a solution can be determined. The refractive index is measured with a refractometer.

The refractometer is also useful for determining the Brix value (mass for the soluble solids or sugar content). In experiment C3.3.3.1, the refractometer is used to determine the mass fraction w in % in a solution by measuring the refractive index. ($w = \frac{\text{mass of the components}}{\text{mass of the mixture}}$. To express the result in percent, the number is multiplied by 100). For this purpose, solutions with different mass fractions of a substance are prepared. In this way, a sample with unknown mass fraction can be determined.