USERS MANUAL
EUROMEX
HAND REFRACTOMETERS
RF.5216, RF.5510, RF.5520, RF.5635, RF.5532, RF.5562, RF.5580, RF.5582, RF.5592, RF.5625, RF.5610 and RF.5190

EUROMEX Microscopen B.V.
HOLLAND

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1.0 Introduction

With your purchase of an EUROMEX hand refractometer you have chosen for a quality product. The EUROMEX hand refractometers are developed for use in laboratories and in the food industry.

The maintenance requirement is limited when using the refractometer in a decent manner.

This manual describes the construction of the refractometer, how to use the refractometer and maintenance of the refractometer.

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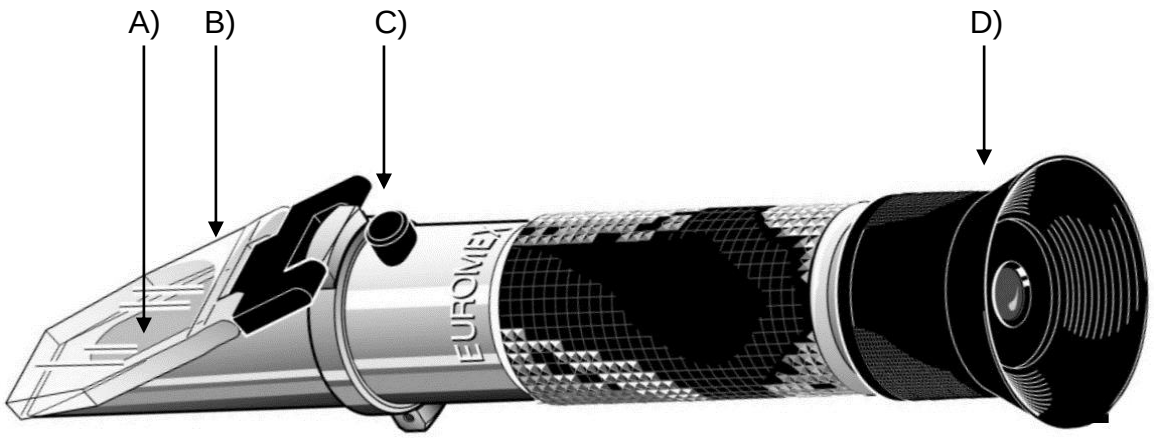
3.0 Construction of the refractometer

The names of the several parts are listed below and are indicated in the picture:

A) Prism
B) Cover
C) Adjustment screw
D) Adjustable eyepiece



4.0 Functions of the refractometer

The EUROMEX hand refractometers are widely used for measuring sugar concentrations, in the table on the next page the different models are shown with their specific way of calibrating them.

CAT.NO.	TYPE	RANGE	ACCURACY	CALIBRATION
RF.5190	Universal	0 - 92 %	0.2	Test piece
RF.5216	High contrast	0 - 16 %	0.2	Distilled water
RF.5510	High contrast	0 - 10 %	0.1	Distilled water
RF.5520	High contrast	0 - 20 %	0.1	Distilled water
RF.5532	High contrast	0 - 32 %	0.2	Distilled water
RF.5562	High contrast	28 - 62 %	0.2	Distlled water
RF.5580	High contrast	0 - 80 %	0.2	Distilled water
RF.5582	High contrast	40 - 82 %	0.5	Test piece
RF.5592	High contrast	58 - 92 %	0.5	Test piece
RF.5610	High contrast	0 - 10 %	0.1	Distilled water or salt solution
RF.5625	High contrast	0 - 40 %	0.2	Distilled water
RF.5635	High contrast	0 - 32 % 0-40 Oe 0-25 KMW	0.2 1 0.2	Distilled water

4.1 Standard accessories

For all types: vinyl carrying case, driver or allen key for scale adjustment, 2 plastic pipettes. For RF 190 only: temperature correction thermometer. For RF.5190, RF.5582 and RF.5592: testpiece 78,8% and dispersion fluid.

5.0 Working with the refractometer

Prior to the actual measurement, the scale should be checked if it is correct or not (calibrated). If not, the scale should be adjusted by using the accessoried tool to turn the scale adjustment screw C. For this check, 3 different standard methods are used, depending on the model refractometer. These are distilled water, a saturated salt solution and a test-piece, as suggested in the above table.

A) Distilled water. Open the prism cover B. and put a drop of distilled water on the surface of prism A. Close the prism cover and peep through the eyepiece D. You will see the horizontal demarcation line as well as the scale in the field of view. If the scale is correctly calibrated the horizontal demarcation line should be exactly on the 0% position of the scale. If not, one can adjust the scale with the driver until the demarcation line is at the scale's 0% position.

B) Test-piece. For RF.5190, RF.5582 and RF.5592 a standard test-piece is included to calibrate the scale. Put a small drop of the supplied dispersion fluid on the prism and put the testpiece into this drop, close the cover gently. The value should read 78,8%

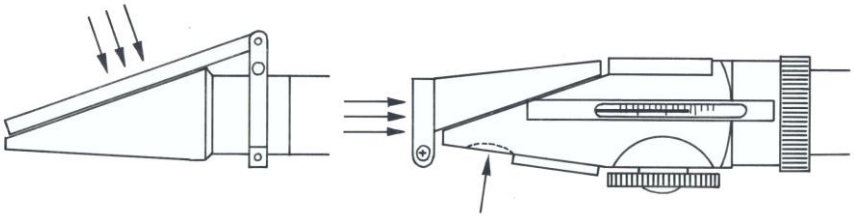
C) Saturated salt solution for RF.5610. This solution is prepared by dissolving small amounts of salt into water until it does not dissolves anymore. Adjustment is temperature-depending, see table. If temperature of the solution is 20°C the adjustment should be made at 29.60%.

temperature	adjust to
15°C	29,90%
20°C	29,60%
25°C	29,20%
30°C	28,90%

5.1 Light entrance

Usually daylight is good enough for all types of hand refractometers but depending of the kind of sample, one can also direct the refractometer to a bright light source.

HIGH CONTRAST TYPE **UNIVERSAL TYPE**



REMARK: Only for the RF.5190, a special daylight window for untransparent specimens is provided. Usually it should be kept closed.

5.2 Actual measurement

Wipe of the distilled water, or dispersion fluid. Put a few drops of the specimen on the prism. Close the prism cover and at the position of the demarcation line the percentage of the measurement can be read.

5.3 Temperature compensation

All types have an Automatic Temperature Compensation system (ATC), except for the RF.5190 universal type. With this type, if the temperature at the measurement is not 20°C. but higher or lower, the reading should be compensated in accordance with the below compensating table. For example, when the reading is 20 at a temperature of 28°C. the compensated percentage is 20% + 0.62% = 20.62%.

%	5	10	15	20	25	30	35	40	45	50	55	60	65	70
°C.	(-) reduce figure from the read figure (%)													
15	0.29	0.31	0.33	0.34	0.34	0.35	0.36	0.37	0.37	0.38	0.39	0.39	0.40	0.40
16	0.24	0.25	0.26	0.27	0.28	0.28	0.29	0.30	0.30	0.30	0.31	0.31	0.32	0.32
17	0.18	0.19	0.20	0.21	0.21	0.21	0.22	0.22	0.23	0.23	0.23	0.23	0.24	0.24
19	0.06	0.06	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
(+) add figure to the read figure (%)														
21	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
22	0.13	0.14	0.14	0.15	0.15	0.15	0.15	0.15	0.16	0.16	0.16	0.16	0.16	0.16
23	0.20	0.21	0.22	0.22	0.23	0.23	0.23	0.23	0.24	0.24	0.24	0.24	0.24	0.24
24	0.27	0.28	0.29	0.30	0.30	0.31	0.31	0.31	0.31	0.31	0.32	0.32	0.32	0.32
25	0.35	0.36	0.36	0.38	0.38	0.38	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
26	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48
27	0.50	0.52	0.53	0.54	0.55	0.55	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
28	0.57	0.60	0.61	0.62	0.63	0.63	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
29	0.66	0.68	0.69	0.71	0.72	0.72	0.72	0.73	0.73	0.73	0.73	0.73	0.73	0.73
30	0.74	0.77	0.78	0.79	0.80	0.80	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81

6.0 Maintenance and cleaning

Always clean the prism of the refractometer after use with a soft tissue.

Warning

- Cleaning cloths containing plastic fibres can damage the coating of the prism!

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