

E-Line Refractometer 'ATC Range'



User Guide



**Bellingham
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ANALYTICS**

E-Line Refractometer 'ATC Range' User Guide (Eng)

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Order Code	Range	Specific Industry	Scale Division
44-801	0-10 °Brix		0.1
44-802	0-18 °Brix		0.1
44-803	0-32 °Brix		0.2
44-804	28-62 °Brix		0.2
44-805	45-82 °Brix		0.5
44-808	0-100 ‰ Saline 1.000-1.070 Saline (SG)	Aquatic	1‰ 0.001
44-809	0-40 °Brix 0-25 Probable Alcohol (AP)		0.2 0.2
44-812	10-30 Water in Honey		0.1
44-817	0-32 °Brix 0-140 Oechsle D		0.2 1
44-818	0-140 Oechsle 0-27 Babo (KMW) 0-32 °Brix		1 0.2 0.2
44-819	0-20 Baume 0-25 Probable Alcohol (AP)		0.2 0.2
44-820	0-70 % Ethylene/Propylene Glycol 0 to -50°C		5 5
44-821	0 to -50°C Ethylene/Propylene Glycol 1.10-1.40 Battery Acid SG 0 to -40°C SRF I Screen Wash	Automotive	5 0.05 0.2
44-825	1.335-1.360 RI 1.000-1.050 Urine SG 0-12 g/100ml Serum Protein	Veterinary	0.0005 0.005 0.2
44-828	1.30-1.38 RI		0.0001
44-829	1.4-1.5 RI		0.0001

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Product Description

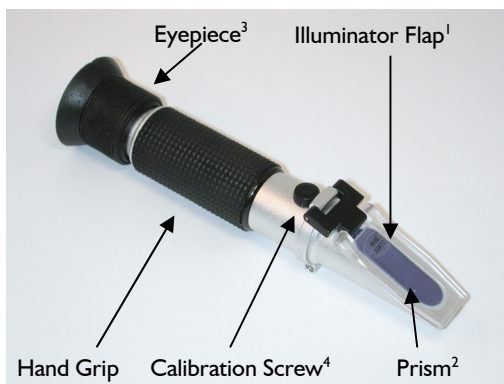
The E-Line Refractometer 'ATC Range' is ideal for use in the soft drinks and food industries as well as other applications requiring concentration measurements such as industrial coolants and quenchant.

Applying the sample to the refractometer:

Lift the illuminator flap¹, drip the sample on to the prism² then close the illuminator flap. View the borderline (light/dark demarcation line) through the eyepiece³.

Optical glass is relatively soft and care should be taken not to scratch the prism surface. Do not use metal spatulas or glass rods to apply samples but instead use softer materials such as plastic.

The E-Line Refractometer ATC Range can also be used for testing solid substances such as apples, melons, grapes, sugar beet and potatoes. Cut a slice of the substance about 2mm thick and slightly smaller than the prism area. With the flap lifted, apply the slice to the surface of the prism taking care to obtain a good contact.



Focussing the scale:

Hold the instrument up to the light and look through the eyepiece. Rotate the eyepiece to focus the scale.

Taking a reading:

Read the scale at the border of the light and dark areas. If the scale is completely light then the sample concentration may be too high for the instrument range.

Cleaning the prism:

Thoroughly clean the prism after use with water or other suitable solvent and dry with clean tissue.

The prism surface could be damaged by strong alkalis or acids if left in contact for long periods of time. Clean samples from the prism as soon as practicable.

Wiping the prism surface occasionally with alcohol will remove any build-up of oils left from the samples.

Calibration

ATC models are corrected for temperature in the range 10-30°C and so should not require adjustment unless the ambient temperature varies by more than 5 °C. If it is felt necessary to adjust the factory set calibration, then the following procedure must be used.

Stabilise the instrument temperature. Apply distilled water to the prism and adjust the reading using the calibration screw⁴ until the borderline crosses the zero line.



Always check sample Health & Safety Data before applying to the refractometer.

When applying samples to the prism which are likely to cause harm to skin or eyes, wear appropriate protective clothing and glasses.

These refractometers are precision optical instruments and should be handled with care. Do not drop or subject them to sharp knocks.

°Brix to Refractive Index Conversion Table

The below table may be used to convert °Brix readings to refractive index where scale type permits.

°Brix	Refractive Index at 589.3nm and 20.0°C	°Brix	Refractive Index at 589.3nm and 20.0°C	°Brix	Refractive Index at 589.3nm and 20.0°C	°Brix	Refractive Index at 589.3nm and 20.0°C	°Brix	Refractive Index at 589.3nm and 20.0°C
0	1.33299	17	1.35891	34	1.38846	51	1.42220	68	1.46061
1	1.33442	18	1.36054	35	1.39032	52	1.42432	69	1.46303
2	1.33586	19	1.36218	36	1.39220	53	1.42647	70	1.46546
3	1.33732	20	1.36384	37	1.39409	54	1.42862	71	1.46790
4	1.33879	21	1.36551	38	1.39600	55	1.43080	72	1.47037
5	1.34026	22	1.36720	39	1.39792	56	1.43299	73	1.47285
6	1.34175	23	1.36889	40	1.39986	57	1.43520	74	1.47535
7	1.34325	24	1.37060	41	1.40181	58	1.43743	75	1.47787
8	1.34477	25	1.37233	42	1.40378	59	1.43967	76	1.48040
9	1.34629	26	1.37406	43	1.40576	60	1.44193	77	1.48295
10	1.34782	27	1.37582	44	1.40776	61	1.44420	78	1.48552
11	1.34937	28	1.37758	45	1.40978	62	1.44650	79	1.48811
12	1.35093	29	1.37936	46	1.41181	63	1.44881	80	1.49071
13	1.35250	30	1.38115	47	1.41385	64	1.45113	81	1.49333
14	1.35408	31	1.38296	48	1.41592	65	1.45348	82	1.49597
15	1.35568	32	1.38478	49	1.41799	66	1.45584		
16	1.35729	33	1.38661	50	1.42009	67	1.45822		

Data Source: ICUMSA Methods Book, Specification and Standard SPS-3 (2000), Refractometry and Tables - (Official)

Note: °Brix values greater than 85.00 are extrapolated from the relationship given in ICUMSA SPS-3 (2000) Equation I.