

Reference Section

Standard Atmospheric Conditions for Textiles:

65% RH ± 4%

20°C ± 2°C

Temperature Scale:

-18°	-10	0	5	10	15	20	30	40	60 °C
0°	10	20	32	40	50	60	70	80	90
									100
									140 °F

Temperature:

$$^{\circ}\text{F to } ^{\circ}\text{C} = (^{\circ}\text{F} - 32) \times \frac{5}{9}$$

$$\text{C to } ^{\circ}\text{F} = (^{\circ}\text{C} \times \frac{9}{5}) + 32$$

Relative Humidity:

For most practical purposes, this is equal to the ratio of the mass of water vapour actually present in unit volume of moist air [absolute humidity] to the mass in unit volume of saturated air at the same temperature. [For definitions see BS 1339].

Chemical Hygrometer:

The values below are grams of water contained in a cubic meter [m³] of saturated air at the total pressure of 101 325 Pa [1013 mb].

Temp / °C	0	1	2	3	4	5	6	7	8	9
0	4.85	5.20	5.55	5.95	6.35	6.80	7.25	7.75	8.25	8.80
10	9.40	10.00	10.65	11.35	12.05	12.80	13.60	14.45	15.35	16.30
20	17.30	18.35	19.40	20.55	21.75	23.05	24.35	25.75	27.20	28.75
30	30.33	32.05	33.80	35.60	37.55	39.55	41.65	43.90	46.20	48.60

CORRECTION FOR RELATIVE HUMIDITY IN WOOL FIBRE DIAMETER MEASUREMENT

The standard method of measurement of wool fibre diameter requires an atmosphere of 65% relative humidity; measurements made under other conditions will be in error to some degree.

The table gives the correction in microns to be applied to values obtained by air-flow or projection microscope methods to give the diameter at 65% r.h.

The relative humidity should be read from a hygrometer mounted near testing area. The sample should have been in the testing room for sufficient time to reach equilibrium with the atmosphere.

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Correction table for effect of relative humidity on wool fibre diameter measurements:

Observed Diameter (microns)	Microns									
	Relative Humidity									
	38-42	43-47	48-52	53-57	58-62	63-67	68-72	73-77	78-82	83-87
	Add	Add	Add	Add	Add		Subtract	Subtract	Subtract	Subtract
18-19.9	0.4	0.4	0.3	0.2	0.1	-	0.1	0.2	0.4	0.6
20-21.9	0.5	0.4	0.3	0.2	0.1	-	0.1	0.2	0.4	0.7
22-23.9	0.5	0.4	0.3	0.2	0.1	-	0.1	0.3	0.5	0.7
24-25.9	0.6	0.5	0.4	0.3	0.1	-	0.1	0.3	0.5	0.8
26-27.9	0.6	0.5	0.4	0.3	0.1	-	0.1	0.3	0.5	0.8
28-29.9	0.6	0.5	0.4	0.3	0.2	-	0.2	0.4	0.6	0.9
30-31.9	0.7	0.6	0.5	0.3	0.2	-	0.2	0.4	0.6	1.0
32-33.9	0.7	0.6	0.5	0.3	0.2	-	0.2	0.4	0.7	1.0
34-35.9	0.8	0.7	0.5	0.4	0.2	-	0.2	0.4	0.7	1.1
36-37.9	0.8	0.7	0.6	0.4	0.2	-	0.2	0.4	0.7	1.1