

RELATIVE HUMIDITY TABLES

for use with

Taylor **HYGROMETERS**

Taylor Instrument Companies

ROCHESTER, N. Y.

TAYLOR INSTRUMENT COMPANIES OF CANADA LIMITED

Winnipeg

TORONTO

Montreal

MANUFACTURING DISTRIBUTORS IN GREAT BRITAIN, SHORT & MASON, LTD., LONDON

FOREWORD

THESE TABLES are computed from data supplied by the Bureau of Standards, and are correct at a barometric pressure of 30.00 inches. At lower barometric pressures the values are slightly different. At 25.00 inches barometric pressure at normal air temperature, the difference is minus 1% at 90% relative humidity, and minus 5% at 20% relative humidity. The difference diminishes slightly with rise, and increases slightly with fall in air temperatures.

It is cautioned that values above 140°F. dry-bulb are obtained from curves which were extrapolated by the National Bureau of Standards from the Weather Bureau data at temperatures below 140°F. Extrapolated values cannot be considered as being absolutely correct.

Should complete tables covering barometric pressure be desired, apply to the Superintendent of Documents, Government Printing Office, Washington, D.C., for psychrometric tables WB-235.

HOW TO USE THE TABLES

Page 7 is arranged for dry-bulb temperature and wet-bulb thermometer depression. The balance of the pages are arranged for humidity values to be taken directly from the wet-bulb and dry-bulb temperatures without first determining the depression.

Locate in margin the reading corresponding to the dry-bulb indication. Locate in other margin the reading corresponding to the wet-bulb indication. The relative humidity is read at the intersection of these two columns. For example—given dry-bulb temperature 144°F. and wet-bulb temperature 112°F., relative humidity is 36%.

IMPORTANT DIRECTIONS FOR HYGROMETERS

Care should be taken to keep the wick clean and supplied with water. Distilled water is preferable. Soluble salts and dirt particles accumulated on the wick adversely affect the rate of evaporation and capillarity, causing inaccuracies in the wet-bulb readings. Wash the wicks frequently; discard and replace when the material becomes hard. Additional wicks can be purchased in lots of one dozen.

For Accurate Readings with Stationary Hygrometer—Accuracy with fixed-position hygrometers, such as the Mason's Form, can be obtained only by creating rapid

circulation around the bulbs. When taking observations, fan the air vigorously around the instrument with hand fan or similar device for a full minute or more, then immediately take the readings . . . first, the wet-bulb; then, the dry-bulb.

For Readings Below the Freezing Point—At temperatures below freezing, the capillarity effect of the wicking is lost. Remove wick from thermometer and apply water directly and sparingly to bare bulb. A thin coat of ice will then be formed on the bulb and evaporation from the frozen surface will go on as before. Accurate results can be expected only with finely graduated thermometers; and the lower the temperature, the more critical is this requirement.

HOW TO USE THE SLING PSYCHROMETER

First remove the instrument from the copper, or leather, protecting case. Saturate the wicking, covering the bulb with water at room temperature, then whirl the instrument for 15 or 20 seconds, holding it away from the body. Stop and note the indication of wet-bulb thermometer; then repeat the operation until two or more readings agree at the lowest indication obtainable. The wicking must be kept perfectly clean and thoroughly saturated to secure accurate indication. See paragraph "Important Directions."

DRY BULB TEMPERATURE °F

WET BULB TEMPERATURE °F

WET BULB TEMPERATURE °F

	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60						
14	1																																													
15		4																																												
16	28	17	7																																											
17	42	31	20	10	1																																									
18	56	44	33	22	13	4																																								
19	71	58	46	35	25	16	7																																							
20	85	71	59	47	37	27	18	7																																						
21	100	86	72	60	49	39	29	21	13	6																																				
22		100	86	73	62	51	41	32	23	16	8	2																																		
23			100	87	74	63	52	43	34	26	18	11	5																																	
24				100	87	75	64	54	44	35	28	20	14	8	2																															
25					100	87	76	65	55	46	37	30	23	16	10	5																														
26						100	88	76	66	56	47	39	32	25	19	13	7	2																												
27							100	88	77	67	58	49	41	34	27	21	15	10	5																											
28								100	88	78	68	59	51	43	36	29	23	17	12	7	3																									
29									100	89	78	69	60	52	45	38	31	25	20	15	10	5																								
30										100	89	79	70	62	54	46	40	33	27	22	17	12	8	4																						
31											100	89	80	71	63	55	48	42	35	29	24	19	14	10	0																					
32												100	90	81	72	64	57	50	43	37	31	26	21	16	12	8	5	1																		
33													100	90	81	73	65	58	51	45	39	33	28	23	18	14	10	7	3																	
34														100	91	82	74	66	59	52	46	40	35	30	25	20	16	12	9	5																
35															100	91	83	75	67	60	54	47	42	36	31	26	22	18	14	10	7	4	1													
36																100	91	83	75	68	61	55	48	43	38	32	28	23	19	16	12	9	6	3												
37																	100	91	83	75	69	62	55	49	44	39	34	29	25	21	17	14	10	8	5	2										
38																		100	92	83	76	69	63	56	51	45	40	35	31	27	23	19	16	12	9	7	4	1								
39																			100	92	84	77	70	63	57	52	46	41	36	32	28	24	20	17	14	11	8	6	3	1						
40																				100	92	85	77	71	64	58	52	47	42	38	34	29	26	22	19	16	13	10	7	5						
41																					100	92	85	78	71	65	59	54	48	43	39	35	31	27	23	20	17	14	11	9						
42																						100	92	85	78	72	66	60	54	49	45	40	36	32	28	25	22	18	16	13						
43																							100	93	86	79	72	66	61	55	50	46	41	37	33	30	26	23	20	17						
44																								100	93	86	79	73	67	61	56	51	47	42	38	34	31	27	24	21						
45																									100	93	86	79	73	67	62	57	52	48	43	39	35	32	29	26						
46																										100	93	86	80	74	68	63	58	53	49	44	40	37								
47																											100	93	86	80	75	69	63	59	54	50	45	41								
48																												100	93	87	81	75	69	64	59	55	50	46	42							
49																													100	93	87	81	75	70	65	60	55	51								
50																														100	94	87	81	76	70	65	61	56								
51																															100	94	87	82	76	71	66	61								
52																																100	94	88	82	77	72	67								
53																																	100	94	88	82	77	72								
54																																		100	94	88	82	77	72							

Taylor Relative Humidity Tables

These values are correct for air velocity of not less than 600 ft. per minute.
 In using wall or standing type hygrometers when greatest accuracy is desired the instrument must be fanned vigorously until the column of the wet-bulb thermometer no longer recedes.

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Taylor Instrument Companies
 Rochester, N. Y.

DRY BULB TEMPERATURE °F

DRY BULB TEMPERATURE °F

WET BULB TEMPERATURE °F

WET BULB TEMPERATURE °F

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80			
41	100	92	85	78	71	65	59	54	48	43	39	35	31	27	23	20	17	14	11	9	7	4	2																		41	
42		100	92	85	78	72	66	60	54	49	45	40	36	32	28	25	22	18	16	13	10	8	6	4	2															42		
43			100	93	86	79	72	66	61	55	50	46	41	37	33	30	26	23	20	17	14	12	10	7	5	3	2													43		
44				100	93	86	79	73	67	61	56	51	47	42	38	34	31	27	24	21	18	16	13	11	9	7	5	3	1											44		
45					100	93	86	79	73	67	62	57	52	48	43	39	35	32	29	26	22	20	17	15	12	10	8	6	5	3	1									45		
46						100	93	86	80	74	68	63	58	53	49	44	40	37	33	30	27	24	21	18	16	14	12	10	8	6	4	3	1							46		
47							100	93	86	80	75	69	63	59	54	50	45	41	38	34	31	28	25	22	20	17	15	13	11	9	7	6	4	3	1					47		
48								100	93	87	81	75	69	64	59	55	50	46	42	39	35	32	29	26	24	21	19	16	14	12	10	9	7	5	4	3	1			48		
49									100	93	87	81	75	70	65	60	55	51	47	43	40	36	33	30	27	25	22	20	18	15	13	12	10	8	7	5	4	3	1		49	
50										100	94	87	81	76	70	65	61	56	52	48	44	41	37	34	31	29	26	23	21	19	17	15	13	11	9	8	6	5	4	3	50	
51											100	94	87	82	76	71	66	61	57	53	49	45	42	38	35	32	30	25	24	22	20	18	16	14	12	11	9	8	6	5	51	
52												100	94	88	82	76	71	66	62	58	54	50	46	43	39	36	33	31	28	25	23	21	19	17	15	13	12	10	9	7	5	52
53													100	94	88	82	77	72	67	63	58	54	50	47	44	40	37	34	32	29	27	24	22	20	18	16	14	13	11	10	53	
54														100	94	88	82	77	72	68	63	59	55	51	48	44	41	38	35	33	30	28	25	23	21	19	17	16	14	12	54	
55															100	94	88	83	78	73	68	64	60	56	52	48	45	42	39	36	33	31	29	26	24	22	20	18	17	15	55	
56																100	94	88	83	78	73	69	64	60	56	53	49	46	43	40	37	34	32	29	27	25	23	21	19	18	56	
57																	100	94	89	83	78	74	69	65	61	57	53	50	47	44	41	38	35	33	30	28	24	22	20	57		
58																		100	94	89	84	79	74	70	66	61	58	54	51	48	45	42	39	36	34	31	29	27	25	23	58	
59																			100	94	89	84	79	74	70	66	62	58	55	51	48	45	42	39	37	34	32	30	28	26	59	
60																				100	94	89	84	79	75	71	66	62	59	55	52	49	46	43	40	38	35	33	31	29	60	
61																					100	94	89	84	80	75	71	67	63	59	56	53	50	47	44	41	39	36	34	32	61	
62																						100	95	90	85	80	75	71	67	64	60	57	53	50	47	44	42	39	37	35	62	
63																							100	95	90	85	80	76	72	68	64	61	57	54	51	48	45	43	40	38	63	
64																								100	95	90	85	80	76	72	68	65	61	58	54	51	48	46	43	41	64	
65																									100	95	90	85	81	77	72	69	65	61	58	55	52	49	46	44	65	
66																										100	95	90	85	81	77	73	69	65	62	59	56	53	50	47	66	
67																											100	95	90	86	81	77	73	69	66	62	59	56	53	50	67	
68																												100	95	90	86	82	78	74	70	66	63	60	57	54	68	
69																													100	95	90	86	82	78	74	70	67	63	60	57	69	
70																														100	95	91	86	82	78	74	71	67	64	61	70	
71																															100	95	91	86	82	78	74	71	68	64	71	
72																																100	95	91	86	82	79	75	71	68	72	
73																																	100	95	91	87	83	79	75	72	73	
74																																		100	96	91	87	83	79	76	74	
75																																			100	96	91	87	83	79	75	
76																																								76		
77																																								77		
78																																								78		
79																																								79		
80																																									80	

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DRY BULB TEMPERATURE °F

DRY BULB TEMPERATURE °F

WET BULB TEMPERATURE °F

	134	136	138	140	142	144	146	148	150	152	154	156	158	160	162	164	166	168	170	172	174	176	178	180	182	184	186	188	190	192	194	196	198	200	202	204	206	208	210	212			
112	49	46	44	41	39	36	34	33	30	29	28	26	25	23	22														100	96	92	88	84	81	78	76	73	70	67	192			
114	53	50	47	44	42	39	37	35	33	31	30	28	27	25	24	22														100	96	92	88	85	81	79	76	73	70	194			
116	57	54	50	47	45	42	40	37	35	34	32	30	29	27	25	24	23														100	96	92	89	86	82	79	76	73	196			
118	61	57	54	51	48	45	43	40	38	36	34	32	31	29	28	27	25	23													100	96	92	89	86	82	79	77	198				
120	65	61	58	54	52	48	46	43	41	38	36	35	33	31	30	29	27	25	23												100	96	92	89	86	82	79	77	200				
122	69	65	62	58	55	52	49	46	43	41	39	37	35	33	32	31	29	27	25	24												100	96	93	90	86	83	202					
124	74	70	66	62	59	55	53	49	46	44	42	39	38	35	34	32	31	29	27	26	24												100	96	93	90	86	84	204				
126	79	74	70	66	63	59	55	53	49	47	44	42	40	38	36	34	33	31	29	28	26	25												100	96	93	90	86	206				
128	84	79	75	70	67	63	59	56	53	50	47	45	43	40	39	37	35	33	31	30	28	27	25												100	96	93	90	86	208			
130	89	84	79	75	71	67	63	60	56	54	50	47	45	43	41	39	37	35	33	32	30	29	27	26											100	96	93	90	86	210			
132	94	89	84	79	75	71	67	64	60	57	54	50	48	46	44	41	40	38	35	34	32	31	29	28	25											100	96	93	90	86	212		
134	100	94	89	84	80	75	71	68	64	60	57	54	51	48	47	44	42	40	38	36	34	33	31	30	28	25																	
136		100	94	89	84	80	76	71	68	64	61	57	55	51	49	47	45	42	40	39	38	35	33	31	30	28	27																
138			100	95	90	84	80	76	71	68	65	61	57	55	51	49	48	45	42	41	39	37	35	33	32	30	28	27															
140				100	95	90	85	80	76	72	69	65	61	58	55	52	50	48	45	43	41	40	37	35	34	32	30	29	28														
142					100	95	90	85	80	76	72	69	65	62	58	56	53	50	48	46	43	42	40	37	36	34	32	31	30	28													
144						100	95	90	85	81	76	72	69	65	62	58	56	53	50	48	44	42	40	38	36	34	33	32	30	29													
146							100	95	90	85	81	77	72	69	65	62	59	57	53	51	49	47	44	42	41	38	37	35	33	32	31	29											
148								100	95	90	85	81	77	73	70	66	63	59	57	54	51	50	47	44	43	41	39	37	35	34	33	31	30										
150									100	95	90	85	81	77	73	70	66	63	60	58	54	52	50	47	45	43	42	39	37	36	34	33	32	30									
152										100	95	90	85	81	77	73	70	67	63	60	58	55	52	50	48	45	44	42	39	38	36	35	34	32	30								
154											100	95	90	85	82	78	74	70	67	63	61	58	55	52	50	48	46	44	42	40	38	37	35	34	32	30	29						
156												100	95	90	86	82	78	74	70	67	64	61	58	55	53	50	48	46	44	42	40	39	37	36	34	32	31	30					
158													100	95	91	86	82	78	74	71	67	64	61	58	56	53	51	48	46	44	42	40	39	38	36	34	33	32	30				
160														100	95	91	86	82	78	74	71	68	64	61	58	56	54	51	49	47	45	43	41	40	38	36	35	33	32	31	160		
162															100	95	91	86	82	79	74	71	68	64	62	59	57	54	51	49	47	45	43	42	40	38	37	35	34	33	162		
164																100	96	91	86	83	79	75	72	68	65	62	60	57	54	52	50	47	45	44	42	40	39	37	36	34	164		
166																	100	96	91	87	83	79	75	72	69	65	63	60	57	55	52	50	48	46	45	42	41	39	38	36	166		
168																		100	96	92	87	83	79	75	72	69	66	63	60	58	55	53	50	48	47	45	43	42	40	38	168		
170																			100	96	92	87	83	79	76	72	69	66	63	60	58	55	53	51	49	47	45	44	42	40	170		
172																				100	96	92	87	83	79	76	73	69	66	63	61	58	55	53	52	49	48	40	44	42	172		
174																					100	96	92	87	83	79	76	73	69	67	63	61	58	56	54	52	50	48	46	44	174		
176																						100	96	92	87	83	80	76	73	70	67	64	61	59	57	55	53	50	48	46	176		
178																							100	96	92	87	83	80	76	73	70	67	64	62	60	58	55	53	50	48	178		
180																								100	96	92	87	83	80	76	73	70	67	65	63	60	58	55	53	51	180		
182																									100	96	92	87	83	80	76	74	70	68	66	63	60	58	56	54	182		
184																										100	96	92	87	84	80	77	74	72	69	66	63	61	58	56	184		
186																											100	96	92	88	84	80	77	75	72	69	66	64	61	58	186		
188																												100	96	92	88	84	80	78	75	72	70	67	64	61	188		
190																													100	96	92	88	84	80	78	75	73	70	67	64	190		

WET BULB TEMPERATURE °F

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Taylor Instrument Companies
Rochester, N. Y.

DRY BULB TEMPERATURE °F

Depression of Wet-Bulb Thermometer

(DRY-BULB TEMP. MINUS WET-BULB TEMP.)

Dry Bulb
Temp. of

	2	4	6	8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.
-23	76	53	29	5																
-24	77	55	32	10																
-23	78	57	36	15																
-22	80	59	39	20	0															
-21	81	61	43	24	5															
-20	82	63	48	28	10															
-19	83	65	48	32	15															
-18	84	67	51	35	19	2														
-17	85	69	53	39	23	7														
-16	86	70	56	42	27	12														
-15	86	72	58	45	31	17	4													
-14	87	74	61	48	34	21	8													
-13	88	75	63	50	38	25	13	0												
-12	88	76	64	52	41	29	17	6												
-11	89	77	66	55	44	32	21	10												
-10	90	78	68	57	46	36	25	14	4											
-9	90	79	70	59	49	39	29	18	9											
-8	90	81	71	61	51	42	32	22	13	3										
-7	91	82	72	63	54	44	35	25	17	8										
-6	91	82	73	64	56	47	38	29	20	12	3									
-5	91	83	75	66	58	49	41	32	24	16	7									
-4	92	84	76	68	60	52	44	36	28	20	12	4								
-3	92	85	77	69	61	54	46	39	31	23	16	8	1							
-2	92	85	78	71	63	56	49	42	34	27	19	12	5							
-1	93	86	79	72	65	58	51	44	37	30	23	16	10	3						
0	93	87	80	73	67	60	53	47	40	33	27	20	14	7	1					
1	93	87	81	75	68	62	56	49	43	36	30	24	18	11	5					
2	94	88	82	76	70	64	58	52	46	39	33	27	21	15	9	3				
3	94	88	82	77	71	65	59	54	48	42	36	30	25	19	13	7	2			
4	94	89	83	78	72	66	61	55	50	44	39	33	28	22	17	11	6	0		
5	95	89	84	78	73	68	63	57	52	46	41	36	31	25	20	15	10	4		
6	95	90	84	79	74	69	64	59	54	48	43	38	33	28	23	18	13	8	3	
7	95	90	85	80	75	70	65	60	55	51	46	41	36	31	26	21	17	12	7	2
8	95	90	86	81	76	71	67	62	57	53	48	43	38	34	29	24	20	15	11	6
9	95	91	86	82	77	72	68	63	59	55	50	46	41	36	32	27	22	18	14	10
10	96	91	87	82	78	73	69	65	60	56	52	47	43	39	34	30	26	22	17	13
11	96	91	87	83	79	74	70	66	62	58	53	49	45	41	37	33	28	25	20	16
12	96	92	88	84	80	75	71	67	63	59	55	51	47	43	39	35	31	27	23	19
13	96	92	88	84	80	76	73	69	65	61	57	63	49	45	41	38	34	30	26	23
14	96	92	89	85	81	77	74	70	66	62	59	55	51	48	44	40	37	33	29	26
15	96	93	89	86	82	78	75	71	67	64	60	57	53	50	46	42	39	35	32	29
16	96	93	90	86	82	79	76	72	69	65	62	58	55	51	48	45	41	38	34	31
17	97	93	90	86	83	80	77	73	70	66	63	60	57	53	50	47	43	40	37	34
18	97	93	90	87	84	80	77	74	71	68	65	61	58	55	52	49	45	42	39	36
19	97	94	90	87	84	81	78	75	72	69	66	63	60	56	53	50	47	44	41	38
20	97	94	91	88	85	82	79	76	73	70	67	64	61	58	55	52	49	46	43	40