Table 2. *Equilibrium Relative Humidity of Selected Saturated Salt Solutions from 0 to 100 °C—Continued*

T °C	Relative Humidity, %							
	Ammonium Chloride	Potassium Bromide	Ammonium Sulfate	Potassium Chloride	Strontium Nitrate	Potassium Nitrate	Potassium Sulfate	Potassium Dichromate
0			82.77 ± 0.90	88.61 ± 0.53		96.33 ± 2.9	98.77 ± 1.1	
5		85.09 ± 0.26	82.42 ± 0.68	87.67 ± 0.45	92.38 ± 0.56	96.27 ± 2.1	98.48 ± 0.91	
10	80.55 ± 0.96	83.75 ± 0.24	82.06 ± 0.51	86.77 ± 0.39	90.55 ± 0.38	95.96 ± 1.4	98.18 ± 0.76	
15	79.89 ± 0.59	82.62 ± 0.22	81.70 ± 0.38	85.92 ± 0.33	88.72 ± 0.28	95.41 ± 0.96	97.89 ± 0.63	
20	79.23 ± 0.44	81.67 ± 0.21	81.34 ± 0.31	85.11 ± 0.29	86.89 ± 0.29	94.62 ± 0.66	97.59 ± 0.53	
25	78.57 ± 0.40	80.89 ± 0.21	80.99 ± 0.28	84.34 ± 0.26	85.06 ± 0.38	93.58 ± 0.55	97.30 ± 0.45	97.88 ± 0.49
30	77.90 ± 0.57	80.27 ± 0.21	80.63 ± 0.30	83.62 ± 0.25		92.31 ± 0.60	97.00 ± 0.40	97.08 ± 0.41
35		79.78 ± 0.22	80.27 ± 0.37	82.95 ± 0.25		90.79 ± 0.83	96.71 ± 0.38	96.42 ± 0.37
40		79.43 ± 0.24	79.91 ± 0.49	82.32 ± 0.25		89.03 ± 1.2	96.41 ± 0.38	95.89 ± 0.37
45		79.18 ± 0.26	79.56 ± 0.65	81.74 ± 0.28		87.03 ± 1.8	96.12 ± 0.40	95.50 ± 0.40
50		79.02 ± 0.28	79.20 ± 0.87	81.20 ± 0.31		84.78 ± 2.5	95.82 ± 0.45	95.25 ± 0.48
55		78.95 ± 0.32		80.70 ± 0.35				
60		78.94 ± 0.35		80.25 ± 0.41				
65		78.99 ± 0.40		79.85 ± 0.48				
70		79.07 ± 0.45		79.49 ± 0.57				
75		79.16 ± 0.50		79.17 ± 0.66				
80		79.27 ± 0.57		78.90 ± 0.77				
85				78.68 ± 0.89				
90				78.50 ± 1.0				
95								
100								

relative humidity at 5-degree intervals. Each calculated value of relative humidity was assigned an uncertainty equal to three times the standard deviation of the predicted value. As might be expected, the calculated relative humidities and the corresponding uncertainties differed for each of the three weightings. For the saturated solutions chosen for presentation in this paper, it was noted with some satisfaction that all relative humidities calculated from the three differently weighted fits agreed with each other to within the assigned uncertainty for each.

A weighting inversely proportional to the square of the estimated total uncertainty for each datum was judged to be inappropriate. Although it is common to assign weights proportional to the inverse of sigma squared such an approach is usually based on a sigma which is statistically determined. This is not the case here. The method used to obtain the estimated total uncertainty is given in the Appendix. It was felt that the use of the square of the estimated uncertainty would have placed an unacceptably high value on the author's estimate of the errors contributing to the total uncertainty. Some investigators did not provide sufficient information in their publications to make possible completely objective estimates of their errors. In those cases, the estimated total uncertainty included components based on the author's subjective judgments.

A weighting of unity was likewise unsatisfactory since it would in no way take into account the innate difference in uncertainty due to method, temperature and relative humidity range, nor would it place any reliance on the author's judgment of the quality of the research. A weighting proportional to the inverse of the estimated uncertainty appeared to be a reasonable compromise between the other extremes and all data presented in this publication were processed using that weighting method.

Where the data for a particular saturated salt solution included a number of investigations, three times the standard deviations of the computed values were accepted as the estimated uncertainty. Where the data were based only on one or two investigations it is evident that self consistent data, though quite inaccurate, could give small estimated standard deviations of the computed values. It is also evident that such standard deviations are not a valid estimate of uncertainty. Under those circumstances where the results from fitting the polynomial equation to the original data for any saturated salt solution gave values for three times the standard deviation of the predicted value that were less than the *estimated* total uncertainty of the original data, it was the estimated total uncertainty of the original data which was used as the final estimate of uncertainty for the calculated "best" value of relative humidity.

The data presented in table 2 are given at 5 °C intervals over the temperature range of the original data with extrapolations beyond these ranges never exceeding 2.5 °C. All calculated values of relative humidity are given to 0.01 percent relative humidity. This does not in any way imply an accuracy of 0.01 percent. The designated estimated uncertainties still give the best prediction of accuracy. It was felt that to fail to give the relative humidities to .01 percent would be discarding information, imprecise as it might be. Since the estimated uncertainties are given, we see no problem with presenting the values of relative humidity with figures far beyond their estimated uncertainties.

The uncertainties presented do not include uncertainties in the vapor pressure equation [22] or enhancement equations