

TABLE 2. THERMODYNAMIC PROPERTIES OF MOIST AIR\* (STANDARD ATMOSPHERIC PRESSURE, 29.921 IN. Hg) (Continued)

| FAHR.<br>TEMP.<br>t (F) | HUMIDITY<br>RATIO<br>W x 10 <sup>3</sup> | VOLUME<br>CU FT/LB DRY AIR |                 |                | ENTHALPY<br>BTU/LB DRY AIR |                 |                | ENTROPY<br>BTU PER (F) (LB DRY AIR) |                 |                | CONDENSED WATER                      |                                         |                                        |                         |
|-------------------------|------------------------------------------|----------------------------|-----------------|----------------|----------------------------|-----------------|----------------|-------------------------------------|-----------------|----------------|--------------------------------------|-----------------------------------------|----------------------------------------|-------------------------|
|                         |                                          | v <sub>g</sub>             | v <sub>as</sub> | v <sub>a</sub> | h <sub>g</sub>             | h <sub>as</sub> | h <sub>a</sub> | s <sub>g</sub>                      | s <sub>as</sub> | s <sub>a</sub> | Enthalpy<br>BTU/LB<br>h <sub>w</sub> | Entropy<br>BTU/(LB<br>F) s <sub>w</sub> | Vap. Press<br>In. Hg<br>p <sub>g</sub> | FAHR.<br>TEMP.<br>t (F) |
|                         |                                          |                            |                 |                |                            |                 |                |                                     |                 |                |                                      |                                         |                                        |                         |
| 70                      | 1.882                                    | 13.348                     | 0.339           | 13.687         | 16.816                     | 17.27           | 34.09          | 0.03405                             | 0.03437         | 0.03404        | 38.11                                | 0.0746                                  | 0.73915                                | 70                      |
| 71                      | 1.887                                    | 13.373                     | 0.351           | 13.724         | 17.086                     | 17.59           | 34.96          | 0.03406                             | 0.03438         | 0.03405        | 39.11                                | 0.0765                                  | 0.76475                                | 71                      |
| 72                      | 1.891                                    | 13.398                     | 0.364           | 13.762         | 17.297                     | 17.93           | 35.83          | 0.03407                             | 0.03439         | 0.03406        | 40.11                                | 0.0784                                  | 0.79112                                | 72                      |
| 73                      | 1.895                                    | 13.424                     | 0.377           | 13.801         | 17.537                     | 18.20           | 36.74          | 0.03408                             | 0.03440         | 0.03407        | 41.11                                | 0.0803                                  | 0.81828                                | 73                      |
| 74                      | 1.819                                    | 13.449                     | 0.392           | 13.841         | 17.778                     | 18.58           | 37.66          | 0.03409                             | 0.03441         | 0.03408        | 42.10                                | 0.0821                                  | 0.84624                                | 74                      |
| 75                      | 1.822                                    | 13.474                     | 0.407           | 13.881         | 18.018                     | 18.99           | 38.61          | 0.03410                             | 0.03442         | 0.03409        | 43.10                                | 0.0840                                  | 0.87604                                | 75                      |
| 76                      | 1.826                                    | 13.499                     | 0.423           | 13.921         | 18.269                     | 19.31           | 39.57          | 0.03411                             | 0.03443         | 0.03410        | 44.10                                | 0.0859                                  | 0.90740                                | 76                      |
| 77                      | 1.830                                    | 13.525                     | 0.437           | 13.962         | 18.499                     | 19.67           | 40.57          | 0.03412                             | 0.03444         | 0.03411        | 45.10                                | 0.0877                                  | 0.93952                                | 77                      |
| 78                      | 1.834                                    | 13.550                     | 0.453           | 14.003         | 18.740                     | 20.04           | 41.58          | 0.03413                             | 0.03445         | 0.03412        | 46.10                                | 0.0896                                  | 0.97265                                | 78                      |
| 79                      | 2.158                                    | 13.575                     | 0.470           | 14.045         | 18.980                     | 20.44           | 42.62          | 0.03414                             | 0.03446         | 0.03413        | 47.10                                | 0.0914                                  | 1.00699                                | 79                      |
| 80                      | 2.233                                    | 13.601                     | 0.486           | 14.087         | 19.221                     | 20.84           | 43.69          | 0.03415                             | 0.03447         | 0.03414        | 48.10                                | 0.0932                                  | 1.03233                                | 80                      |
| 81                      | 2.310                                    | 13.626                     | 0.504           | 14.130         | 19.461                     | 21.27           | 44.78          | 0.03416                             | 0.03448         | 0.03415        | 49.09                                | 0.0952                                  | 1.0585                                 | 81                      |
| 82                      | 2.389                                    | 13.651                     | 0.523           | 14.174         | 19.702                     | 21.70           | 45.88          | 0.03417                             | 0.03449         | 0.03416        | 50.09                                | 0.0970                                  | 1.1017                                 | 82                      |
| 83                      | 2.471                                    | 13.676                     | 0.542           | 14.218         | 19.944                     | 22.14           | 46.99          | 0.03418                             | 0.03450         | 0.03417        | 51.09                                | 0.0989                                  | 1.1376                                 | 83                      |
| 84                      | 2.556                                    | 13.702                     | 0.560           | 14.262         | 20.183                     | 22.58           | 48.04          | 0.03419                             | 0.03451         | 0.03418        | 52.09                                | 0.1007                                  | 1.1762                                 | 84                      |
| 85                      | 2.642                                    | 13.727                     | 0.581           | 14.308         | 20.423                     | 23.01           | 49.13          | 0.03420                             | 0.03452         | 0.03419        | 53.09                                | 0.1025                                  | 1.2136                                 | 85                      |
| 86                      | 2.731                                    | 13.752                     | 0.602           | 14.354         | 20.663                     | 23.44           | 50.23          | 0.03421                             | 0.03453         | 0.03420        | 54.09                                | 0.1043                                  | 1.2529                                 | 86                      |
| 87                      | 2.824                                    | 13.777                     | 0.624           | 14.401         | 20.904                     | 23.87           | 51.33          | 0.03422                             | 0.03454         | 0.03421        | 55.08                                | 0.1062                                  | 1.2944                                 | 87                      |
| 88                      | 2.919                                    | 13.803                     | 0.645           | 14.448         | 21.144                     | 24.30           | 52.43          | 0.03423                             | 0.03455         | 0.03422        | 56.08                                | 0.1080                                  | 1.3379                                 | 88                      |
| 89                      | 3.017                                    | 13.828                     | 0.668           | 14.496         | 21.385                     | 24.73           | 53.53          | 0.03424                             | 0.03456         | 0.03423        | 57.08                                | 0.1098                                  | 1.3779                                 | 89                      |
| 90                      | 3.118                                    | 13.853                     | 0.692           | 14.545         | 21.625                     | 25.16           | 54.63          | 0.03425                             | 0.03457         | 0.03424        | 58.08                                | 0.1116                                  | 1.4219                                 | 90                      |
| 91                      | 3.223                                    | 13.879                     | 0.716           | 14.594         | 21.865                     | 25.59           | 55.73          | 0.03426                             | 0.03458         | 0.03425        | 59.07                                | 0.1135                                  | 1.4671                                 | 91                      |
| 92                      | 3.330                                    | 13.904                     | 0.740           | 14.643         | 22.105                     | 26.02           | 56.83          | 0.03427                             | 0.03459         | 0.03426        | 60.07                                | 0.1153                                  | 1.5135                                 | 92                      |
| 93                      | 3.441                                    | 13.929                     | 0.765           | 14.692         | 22.345                     | 26.45           | 57.93          | 0.03428                             | 0.03460         | 0.03427        | 61.07                                | 0.1171                                  | 1.5612                                 | 93                      |
| 94                      | 3.556                                    | 13.954                     | 0.790           | 14.740         | 22.585                     | 26.88           | 59.03          | 0.03429                             | 0.03461         | 0.03428        | 62.07                                | 0.1188                                  | 1.6102                                 | 94                      |
| 95                      | 3.673                                    | 13.980                     | 0.822           | 14.802         | 22.827                     | 27.31           | 60.13          | 0.03430                             | 0.03462         | 0.03429        | 63.07                                | 0.1206                                  | 1.6606                                 | 95                      |
| 96                      | 3.795                                    | 14.005                     | 0.851           | 14.865         | 23.068                     | 27.74           | 61.23          | 0.03431                             | 0.03463         | 0.03430        | 64.06                                | 0.1224                                  | 1.7123                                 | 96                      |
| 97                      | 3.920                                    | 14.030                     | 0.881           | 14.911         | 23.308                     | 28.17           | 62.33          | 0.03432                             | 0.03464         | 0.03431        | 65.06                                | 0.1242                                  | 1.7659                                 | 97                      |
| 98                      | 4.049                                    | 14.055                     | 0.911           | 14.957         | 23.548                     | 28.60           | 63.43          | 0.03433                             | 0.03465         | 0.03432        | 66.06                                | 0.1260                                  | 1.8216                                 | 98                      |
| 99                      | 4.182                                    | 14.081                     | 0.942           | 15.023         | 23.788                     | 29.03           | 64.53          | 0.03434                             | 0.03466         | 0.03433        | 67.06                                | 0.1278                                  | 1.8799                                 | 99                      |
| 100                     | 4.319                                    | 14.106                     | 0.975           | 15.081         | 24.029                     | 29.46           | 65.63          | 0.03435                             | 0.03467         | 0.03434        | 68.06                                | 0.1296                                  | 1.9399                                 | 100                     |
| 101                     | 4.460                                    | 14.131                     | 1.003           | 15.140         | 24.270                     | 29.89           | 66.73          | 0.03436                             | 0.03468         | 0.03435        | 69.06                                | 0.1314                                  | 1.9923                                 | 101                     |
| 102                     | 4.606                                    | 14.157                     | 1.043           | 15.200         | 24.510                     | 30.32           | 67.83          | 0.03437                             | 0.03469         | 0.03436        | 70.05                                | 0.1332                                  | 2.0528                                 | 102                     |
| 103                     | 4.756                                    | 14.182                     | 1.079           | 15.261         | 24.751                     | 30.75           | 69.03          | 0.03438                             | 0.03470         | 0.03437        | 71.05                                | 0.1350                                  | 2.1149                                 | 103                     |
| 104                     | 4.911                                    | 14.207                     | 1.117           | 15.324         | 24.991                     | 31.18           | 70.03          | 0.03439                             | 0.03471         | 0.03438        | 72.05                                | 0.1367                                  | 2.1786                                 | 104                     |

\* Compiled by John A. Goff and S. Gratch.

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| FAHR.<br>TEMP.<br>t (F) | HUMIDITY<br>RATIO<br>W x 10 | VOLUME<br>CU FT/LB DRY AIR |                 |                | ENTHALPY<br>BTU/LB DRY AIR |                 |                | ENTROPY<br>BTU PER (°F) (LB DRY AIR) |                 |                | CONDENSED WATER                      |                                          |                                        | FAHR.<br>TEMP.<br>t (F) |
|-------------------------|-----------------------------|----------------------------|-----------------|----------------|----------------------------|-----------------|----------------|--------------------------------------|-----------------|----------------|--------------------------------------|------------------------------------------|----------------------------------------|-------------------------|
|                         |                             | v <sub>g</sub>             | v <sub>as</sub> | v <sub>a</sub> | h <sub>g</sub>             | h <sub>as</sub> | h <sub>a</sub> | s <sub>g</sub>                       | s <sub>as</sub> | s <sub>a</sub> | Enthalpy<br>BTU/LB<br>h <sub>w</sub> | Entropy<br>BTU/(LB<br>°F) s <sub>w</sub> | Vap. Press<br>In. Hg<br>p <sub>g</sub> |                         |
|                         |                             |                            |                 |                |                            |                 |                |                                      |                 |                |                                      |                                          |                                        |                         |
| 105                     | 0.5070                      | 14.232                     | 1.155           | 15.387         | 25.232                     | 29.61           | 81.34          | 0.04943                              | 0.1052          | 0.1546         | 73.04                                | 0.1385                                   | 2.2439                                 | 105                     |
| 106                     | 0.5234                      | 14.258                     | 1.194           | 15.452         | 25.472                     | 29.95           | 82.42          | 0.04965                              | 0.1085          | 0.1584         | 74.04                                | 0.1403                                   | 2.3109                                 | 106                     |
| 107                     | 0.5404                      | 14.283                     | 1.235           | 15.518         | 25.713                     | 30.29           | 83.50          | 0.04985                              | 0.1118          | 0.1621         | 75.04                                | 0.1421                                   | 2.3797                                 | 107                     |
| 108                     | 0.5578                      | 14.308                     | 1.278           | 15.586         | 25.953                     | 30.63           | 84.58          | 0.05013                              | 0.1159          | 0.1650         | 76.04                                | 0.1438                                   | 2.4502                                 | 108                     |
| 109                     | 0.5758                      | 14.333                     | 1.321           | 15.654         | 26.194                     | 30.97           | 85.66          | 0.05070                              | 0.1199          | 0.1680         | 77.04                                | 0.1456                                   | 2.5225                                 | 109                     |
| 110                     | 0.5944                      | 14.359                     | 1.365           | 15.724         | 26.434                     | 31.31           | 86.73          | 0.05155                              | 0.1226          | 0.1742         | 78.03                                | 0.1472                                   | 2.5966                                 | 110                     |
| 111                     | 0.6135                      | 14.384                     | 1.412           | 15.796         | 26.675                     | 31.65           | 87.81          | 0.05197                              | 0.1264          | 0.1784         | 79.03                                | 0.1491                                   | 2.6725                                 | 111                     |
| 112                     | 0.6330                      | 14.409                     | 1.460           | 15.869         | 26.916                     | 31.99           | 88.89          | 0.05239                              | 0.1302          | 0.1826         | 80.03                                | 0.1508                                   | 2.7500                                 | 112                     |
| 113                     | 0.6538                      | 14.435                     | 1.509           | 15.944         | 27.156                     | 32.33           | 89.97          | 0.05281                              | 0.1342          | 0.1870         | 81.03                                | 0.1525                                   | 2.8294                                 | 113                     |
| 114                     | 0.6746                      | 14.460                     | 1.560           | 16.020         | 27.397                     | 32.67           | 91.05          | 0.05323                              | 0.1384          | 0.1916         | 82.03                                | 0.1543                                   | 2.9123                                 | 114                     |
| 115                     | 0.6962                      | 14.485                     | 1.613           | 16.098         | 27.637                     | 33.01           | 92.14          | 0.05365                              | 0.1428          | 0.1963         | 83.02                                | 0.1560                                   | 2.9962                                 | 115                     |
| 116                     | 0.7185                      | 14.510                     | 1.668           | 16.178         | 27.878                     | 33.35           | 93.21          | 0.05407                              | 0.1470          | 0.2011         | 84.02                                | 0.1577                                   | 3.0821                                 | 116                     |
| 117                     | 0.7415                      | 14.535                     | 1.723           | 16.259         | 28.119                     | 33.69           | 94.29          | 0.05449                              | 0.1516          | 0.2060         | 85.02                                | 0.1595                                   | 3.1701                                 | 117                     |
| 118                     | 0.7652                      | 14.561                     | 1.788           | 16.343         | 28.359                     | 34.03           | 95.56          | 0.05491                              | 0.1562          | 0.2111         | 86.02                                | 0.1612                                   | 3.2603                                 | 118                     |
| 119                     | 0.7897                      | 14.586                     | 1.842           | 16.428         | 28.599                     | 34.37           | 96.83          | 0.05532                              | 0.1602          | 0.2163         | 87.02                                | 0.1629                                   | 3.3527                                 | 119                     |
| 120                     | 0.8149                      | 14.611                     | 1.905           | 16.510         | 28.841                     | 34.71           | 98.10          | 0.05573                              | 0.1650          | 0.2216         | 88.01                                | 0.1646                                   | 3.4474                                 | 120                     |
| 121                     | 0.8410                      | 14.637                     | 1.968           | 16.589         | 29.082                     | 35.04           | 99.37          | 0.05615                              | 0.1700          | 0.2272         | 89.01                                | 0.1664                                   | 3.5443                                 | 121                     |
| 122                     | 0.8678                      | 14.662                     | 2.034           | 16.668         | 29.322                     | 35.38           | 100.64         | 0.05656                              | 0.1753          | 0.2328         | 90.01                                | 0.1681                                   | 3.6433                                 | 122                     |
| 123                     | 0.8955                      | 14.687                     | 2.103           | 16.750         | 29.563                     | 35.72           | 101.91         | 0.05698                              | 0.1807          | 0.2387         | 91.01                                | 0.1698                                   | 3.7452                                 | 123                     |
| 124                     | 0.9242                      | 14.712                     | 2.174           | 16.836         | 29.804                     | 36.06           | 103.18         | 0.05739                              | 0.1872          | 0.2446         | 92.01                                | 0.1715                                   | 3.8493                                 | 124                     |
| 125                     | 0.9537                      | 14.738                     | 2.247           | 16.925         | 30.044                     | 36.40           | 104.45         | 0.05780                              | 0.1930          | 0.2508         | 93.01                                | 0.1732                                   | 3.9558                                 | 125                     |
| 126                     | 0.9841                      | 14.763                     | 2.323           | 17.018         | 30.285                     | 36.74           | 105.72         | 0.05821                              | 0.1989          | 0.2571         | 94.01                                | 0.1749                                   | 4.0649                                 | 126                     |
| 127                     | 1.016                       | 14.788                     | 2.401           | 17.109         | 30.526                     | 37.08           | 107.00         | 0.05862                              | 0.2050          | 0.2636         | 95.00                                | 0.1766                                   | 4.1765                                 | 127                     |
| 128                     | 1.048                       | 14.813                     | 2.482           | 17.205         | 30.766                     | 37.42           | 108.27         | 0.05902                              | 0.2113          | 0.2703         | 96.00                                | 0.1783                                   | 4.2907                                 | 128                     |
| 129                     | 1.082                       | 14.838                     | 2.565           | 17.300         | 31.007                     | 37.76           | 109.54         | 0.05944                              | 0.2178          | 0.2772         | 97.00                                | 0.1800                                   | 4.4076                                 | 129                     |
| 130                     | 1.116                       | 14.864                     | 2.652           | 17.397         | 31.248                     | 38.10           | 110.81         | 0.05985                              | 0.2245          | 0.2844         | 98.00                                | 0.1817                                   | 4.5272                                 | 130                     |
| 131                     | 1.152                       | 14.890                     | 2.742           | 17.493         | 31.489                     | 38.44           | 112.08         | 0.06026                              | 0.2314          | 0.2917         | 99.00                                | 0.1834                                   | 4.6497                                 | 131                     |
| 132                     | 1.189                       | 14.915                     | 2.834           | 17.590         | 31.729                     | 38.78           | 113.35         | 0.06067                              | 0.2386          | 0.2993         | 100.00                               | 0.1851                                   | 4.7747                                 | 132                     |
| 133                     | 1.227                       | 14.940                     | 2.930           | 17.687         | 31.970                     | 39.12           | 114.62         | 0.06108                              | 0.2459          | 0.3070         | 101.00                               | 0.1868                                   | 4.9026                                 | 133                     |
| 134                     | 1.267                       | 14.965                     | 3.029           | 17.784         | 32.211                     | 39.46           | 115.89         | 0.06148                              | 0.2536          | 0.3151         | 102.00                               | 0.1885                                   | 5.0337                                 | 134                     |
| 135                     | 1.308                       | 14.990                     | 3.132           | 17.881         | 32.452                     | 39.80           |                | 0.06189                              | 0.2614          | 0.3223         | 103.00                               | 0.1902                                   | 5.1676                                 | 135                     |
| 136                     | 1.350                       | 15.016                     | 3.237           | 18.033         | 32.692                     | 40.14           |                | 0.06229                              | 0.2695          | 0.3304         | 104.00                               | 0.1918                                   | 5.3046                                 | 136                     |
| 137                     | 1.393                       | 15.041                     | 3.348           | 18.350         | 32.933                     | 40.48           |                | 0.06270                              | 0.2778          | 0.3405         | 105.00                               | 0.1935                                   | 5.4446                                 | 137                     |
| 138                     | 1.439                       | 15.068                     | 3.462           | 18.528         | 33.174                     | 40.82           |                | 0.06310                              | 0.2865          | 0.3506         | 106.00                               | 0.1952                                   | 5.5878                                 | 138                     |
| 139                     | 1.485                       | 15.091                     | 3.580           | 18.671         | 33.414                     | 41.16           |                | 0.06350                              | 0.2954          | 0.3599         | 107.00                               | 0.1969                                   | 5.7342                                 | 139                     |