

Lampiran 4

Table of saturated values for: R22, CHClF₂, Chlorodifluoromethane

| T °C | p Bar | v _l dm ³ /kg | v _g m ³ /kg | h _l kJ/kg | h _g kJ/kg | R kJ/kg | s _l kJ/(kg K) | s _g kJ/(kg K) |
|---------|----------|---------------------------------------|--------------------------------------|-------------------------|-------------------------|------------|-----------------------------|-----------------------------|
| -54.00 | 0.522 | 0.6899 | 0.39462 | 140.84 | 382.02 | 241.18 | 0.7606 | 1.8611 |
| -53.00 | 0.551 | 0.6912 | 0.37554 | 141.86 | 382.50 | 240.64 | 0.7652 | 1.8583 |
| -52.00 | 0.580 | 0.6925 | 0.35755 | 142.88 | 382.98 | 240.09 | 0.7699 | 1.8555 |
| -51.00 | 0.611 | 0.6939 | 0.34060 | 143.91 | 383.45 | 239.54 | 0.7745 | 1.8528 |
| -50.00 | 0.644 | 0.6952 | 0.32461 | 144.94 | 383.93 | 238.99 | 0.7791 | 1.8501 |
| -49.00 | 0.678 | 0.6966 | 0.30951 | 145.98 | 384.40 | 238.43 | 0.7837 | 1.8474 |
| -48.00 | 0.713 | 0.6980 | 0.29526 | 147.01 | 384.88 | 237.86 | 0.7883 | 1.8448 |
| -47.00 | 0.749 | 0.6994 | 0.28180 | 148.05 | 385.35 | 237.30 | 0.7929 | 1.8422 |
| -46.00 | 0.787 | 0.7008 | 0.26907 | 149.09 | 385.82 | 236.73 | 0.7975 | 1.8397 |
| -45.00 | 0.827 | 0.7022 | 0.25703 | 150.14 | 386.29 | 236.15 | 0.8021 | 1.8372 |
| -44.00 | 0.868 | 0.7036 | 0.24564 | 151.19 | 386.76 | 235.57 | 0.8066 | 1.8347 |
| -43.00 | 0.911 | 0.7050 | 0.23485 | 152.24 | 387.23 | 234.99 | 0.8112 | 1.8322 |
| -42.00 | 0.955 | 0.7064 | 0.22464 | 153.29 | 387.69 | 234.40 | 0.8157 | 1.8298 |
| -41.00 | 1.002 | 0.7079 | 0.21496 | 154.34 | 388.16 | 233.81 | 0.8203 | 1.8275 |
| -40.00 | 1.049 | 0.7093 | 0.20578 | 155.40 | 388.62 | 233.22 | 0.8248 | 1.8251 |
| -39.00 | 1.099 | 0.7108 | 0.19707 | 156.46 | 389.08 | 232.62 | 0.8293 | 1.8228 |
| -38.00 | 1.151 | 0.7123 | 0.18881 | 157.52 | 389.54 | 232.01 | 0.8339 | 1.8205 |
| -37.00 | 1.204 | 0.7138 | 0.18096 | 158.59 | 390.00 | 231.41 | 0.8384 | 1.8183 |
| -36.00 | 1.259 | 0.7153 | 0.17351 | 159.66 | 390.45 | 230.79 | 0.8429 | 1.8161 |
| -35.00 | 1.317 | 0.7168 | 0.16642 | 160.73 | 390.91 | 230.18 | 0.8474 | 1.8139 |
| -34.00 | 1.376 | 0.7183 | 0.15969 | 161.80 | 391.36 | 229.55 | 0.8518 | 1.8117 |
| -33.00 | 1.438 | 0.7198 | 0.15329 | 162.88 | 391.81 | 228.93 | 0.8563 | 1.8096 |
| -32.00 | 1.501 | 0.7214 | 0.14719 | 163.96 | 392.26 | 228.30 | 0.8608 | 1.8075 |
| -31.00 | 1.567 | 0.7229 | 0.14139 | 165.04 | 392.70 | 227.66 | 0.8652 | 1.8054 |
| -30.00 | 1.635 | 0.7245 | 0.13586 | 166.13 | 393.15 | 227.02 | 0.8697 | 1.8034 |
| -29.00 | 1.705 | 0.7261 | 0.13060 | 167.22 | 393.59 | 226.37 | 0.8741 | 1.8013 |
| -28.00 | 1.778 | 0.7277 | 0.12558 | 168.31 | 394.03 | 225.72 | 0.8786 | 1.7993 |
| -27.00 | 1.853 | 0.7293 | 0.12080 | 169.40 | 394.47 | 225.07 | 0.8830 | 1.7974 |
| -26.00 | 1.930 | 0.7309 | 0.11623 | 170.50 | 394.91 | 224.41 | 0.8874 | 1.7954 |
| -25.00 | 2.010 | 0.7325 | 0.11187 | 171.60 | 395.34 | 223.74 | 0.8918 | 1.7935 |
| -24.00 | 2.092 | 0.7342 | 0.10772 | 172.70 | 395.77 | 223.07 | 0.8963 | 1.7916 |
| -23.00 | 2.177 | 0.7358 | 0.10374 | 173.80 | 396.20 | 222.40 | 0.9007 | 1.7897 |
| -22.00 | 2.265 | 0.7375 | 0.09995 | 174.91 | 396.63 | 221.72 | 0.9050 | 1.7879 |
| -21.00 | 2.355 | 0.7392 | 0.09632 | 176.02 | 397.05 | 221.03 | 0.9094 | 1.7860 |
| -20.00 | 2.448 | 0.7409 | 0.09286 | 177.13 | 397.48 | 220.34 | 0.9138 | 1.7842 |
| -19.00 | 2.544 | 0.7426 | 0.08954 | 178.25 | 397.90 | 219.65 | 0.9182 | 1.7824 |
| -18.00 | 2.643 | 0.7443 | 0.08637 | 179.37 | 398.31 | 218.95 | 0.9226 | 1.7807 |
| -17.00 | 2.745 | 0.7461 | 0.08333 | 180.49 | 398.73 | 218.24 | 0.9269 | 1.7789 |
| -16.00 | 2.849 | 0.7478 | 0.08042 | 181.61 | 399.14 | 217.53 | 0.9313 | 1.7772 |
| -15.00 | 2.957 | 0.7496 | 0.07763 | 182.74 | 399.55 | 216.81 | 0.9356 | 1.7755 |
| -14.00 | 3.068 | 0.7514 | 0.07497 | 183.87 | 399.96 | 216.09 | 0.9399 | 1.7738 |
| -13.00 | 3.182 | 0.7532 | 0.07241 | 185.00 | 400.37 | 215.36 | 0.9443 | 1.7721 |
| -12.00 | 3.299 | 0.7550 | 0.06996 | 186.14 | 400.77 | 214.63 | 0.9486 | 1.7705 |
| -11.00 | 3.419 | 0.7569 | 0.06760 | 187.28 | 401.17 | 213.89 | 0.9529 | 1.7688 |
| -10.00 | 3.543 | 0.7587 | 0.06535 | 188.42 | 401.56 | 213.14 | 0.9572 | 1.7672 |
| -9.00 | 3.670 | 0.7606 | 0.06318 | 189.57 | 401.96 | 212.39 | 0.9615 | 1.7656 |
| -8.00 | 3.801 | 0.7625 | 0.06110 | 190.71 | 402.35 | 211.64 | 0.9658 | 1.7640 |
| -7.00 | 3.935 | 0.7644 | 0.05911 | 191.86 | 402.74 | 210.87 | 0.9701 | 1.7624 |
| -6.00 | 4.072 | 0.7663 | 0.05719 | 193.02 | 403.12 | 210.11 | 0.9744 | 1.7609 |
| -5.00 | 4.213 | 0.7683 | 0.05534 | 194.17 | 403.51 | 209.33 | 0.9787 | 1.7593 |
| -4.00 | 4.358 | 0.7703 | 0.05357 | 195.33 | 403.88 | 208.55 | 0.9830 | 1.7578 |
| -3.00 | 4.507 | 0.7722 | 0.05187 | 196.50 | 404.26 | 207.77 | 0.9872 | 1.7563 |

| | | | | | | | | |
|-------|-------|--------|---------|--------|--------|--------|--------|--------|
| -2.00 | 4.659 | 0.7742 | 0.05023 | 197.66 | 404.63 | 206.97 | 0.9915 | 1.7548 |
| -1.00 | 4.816 | 0.7763 | 0.04866 | 198.83 | 405.00 | 206.17 | 0.9957 | 1.7533 |
| 0.00 | 4.976 | 0.7783 | 0.04714 | 200.00 | 405.37 | 205.37 | 1.0000 | 1.7519 |
| 1.00 | 5.140 | 0.7804 | 0.04568 | 201.17 | 405.73 | 204.56 | 1.0042 | 1.7504 |
| 2.00 | 5.308 | 0.7825 | 0.04427 | 202.35 | 406.09 | 203.74 | 1.0085 | 1.7490 |
| 3.00 | 5.481 | 0.7846 | 0.04292 | 203.53 | 406.45 | 202.92 | 1.0127 | 1.7475 |
| 4.00 | 5.657 | 0.7867 | 0.04162 | 204.72 | 406.80 | 202.09 | 1.0169 | 1.7461 |
| 5.00 | 5.838 | 0.7889 | 0.04036 | 205.90 | 407.15 | 201.25 | 1.0212 | 1.7447 |

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Table of saturated values for: R22, CHClF2, Chlorodifluoromethane

| T °C | p Bar | v_l dm ³ /kg | v_g m ³ /kg | h_l kJ/kg | h_g kJ/kg | R kJ/kg | s_l kJ/(kg K) | s_g kJ/(kg K) |
|---------|----------|------------------------------|-----------------------------|----------------|----------------|------------|--------------------|--------------------|
| 6.00 | 6.023 | 0.7910 | 0.03915 | 207.09 | 407.50 | 200.41 | 1.0254 | 1.7433 |
| 7.00 | 6.212 | 0.7932 | 0.03798 | 208.29 | 407.84 | 199.55 | 1.0296 | 1.7419 |
| 8.00 | 6.406 | 0.7955 | 0.03685 | 209.48 | 408.18 | 198.70 | 1.0338 | 1.7405 |
| 9.00 | 6.604 | 0.7977 | 0.03576 | 210.68 | 408.51 | 197.83 | 1.0380 | 1.7392 |
| 10.00 | 6.807 | 0.8000 | 0.03472 | 211.88 | 408.84 | 196.96 | 1.0422 | 1.7378 |
| 11.00 | 7.014 | 0.8023 | 0.03370 | 213.09 | 409.17 | 196.08 | 1.0464 | 1.7365 |
| 12.00 | 7.226 | 0.8046 | 0.03273 | 214.30 | 409.49 | 195.19 | 1.0506 | 1.7351 |
| 13.00 | 7.443 | 0.8070 | 0.03179 | 215.49 | 409.81 | 194.32 | 1.0547 | 1.7338 |
| 14.00 | 7.665 | 0.8094 | 0.03087 | 216.70 | 410.13 | 193.42 | 1.0589 | 1.7325 |
| 15.00 | 7.891 | 0.8118 | 0.02999 | 217.92 | 410.44 | 192.52 | 1.0631 | 1.7312 |
| 16.00 | 8.123 | 0.8142 | 0.02914 | 219.15 | 410.75 | 191.60 | 1.0672 | 1.7299 |
| 17.00 | 8.359 | 0.8167 | 0.02832 | 220.37 | 411.05 | 190.68 | 1.0714 | 1.7286 |
| 18.00 | 8.601 | 0.8192 | 0.02752 | 221.60 | 411.35 | 189.74 | 1.0756 | 1.7273 |
| 19.00 | 8.847 | 0.8217 | 0.02675 | 222.83 | 411.64 | 188.81 | 1.0797 | 1.7260 |
| 20.00 | 9.099 | 0.8243 | 0.02601 | 224.07 | 411.93 | 187.86 | 1.0839 | 1.7247 |
| 21.00 | 9.356 | 0.8269 | 0.02529 | 225.31 | 412.21 | 186.90 | 1.0880 | 1.7234 |
| 22.00 | 9.619 | 0.8295 | 0.02459 | 226.56 | 412.49 | 185.94 | 1.0922 | 1.7221 |
| 23.00 | 9.887 | 0.8322 | 0.02391 | 227.80 | 412.77 | 184.96 | 1.0963 | 1.7209 |
| 24.00 | 10.160 | 0.8349 | 0.02326 | 229.05 | 413.03 | 183.98 | 1.1005 | 1.7196 |
| 25.00 | 10.439 | 0.8376 | 0.02263 | 230.31 | 413.30 | 182.99 | 1.1046 | 1.7183 |
| 26.00 | 10.723 | 0.8404 | 0.02201 | 231.57 | 413.56 | 181.99 | 1.1087 | 1.7171 |
| 27.00 | 11.014 | 0.8432 | 0.02142 | 232.83 | 413.81 | 180.98 | 1.1129 | 1.7158 |
| 28.00 | 11.309 | 0.8461 | 0.02084 | 234.10 | 414.06 | 179.96 | 1.1170 | 1.7146 |
| 29.00 | 11.611 | 0.8490 | 0.02029 | 235.37 | 414.30 | 178.93 | 1.1211 | 1.7133 |
| 30.00 | 11.919 | 0.8519 | 0.01974 | 236.65 | 414.54 | 177.89 | 1.1253 | 1.7121 |
| 31.00 | 12.232 | 0.8549 | 0.01922 | 237.93 | 414.77 | 176.84 | 1.1294 | 1.7108 |
| 32.00 | 12.552 | 0.8579 | 0.01871 | 239.22 | 415.00 | 175.78 | 1.1335 | 1.7096 |
| 33.00 | 12.878 | 0.8610 | 0.01822 | 240.51 | 415.22 | 174.71 | 1.1377 | 1.7083 |
| 34.00 | 13.210 | 0.8641 | 0.01774 | 241.80 | 415.43 | 173.63 | 1.1418 | 1.7071 |
| 35.00 | 13.548 | 0.8673 | 0.01727 | 243.10 | 415.64 | 172.54 | 1.1459 | 1.7058 |
| 36.00 | 13.892 | 0.8705 | 0.01682 | 244.41 | 415.84 | 171.43 | 1.1500 | 1.7046 |
| 37.00 | 14.243 | 0.8738 | 0.01638 | 245.71 | 416.03 | 170.32 | 1.1542 | 1.7033 |
| 38.00 | 14.601 | 0.8771 | 0.01595 | 247.03 | 416.22 | 169.19 | 1.1583 | 1.7021 |
| 39.00 | 14.965 | 0.8805 | 0.01554 | 248.35 | 416.40 | 168.05 | 1.1624 | 1.7008 |
| 40.00 | 15.335 | 0.8839 | 0.01514 | 249.67 | 416.57 | 166.90 | 1.1666 | 1.6995 |
| 41.00 | 15.712 | 0.8874 | 0.01475 | 251.00 | 416.74 | 165.73 | 1.1707 | 1.6983 |
| 42.00 | 16.097 | 0.8909 | 0.01437 | 252.34 | 416.89 | 164.55 | 1.1748 | 1.6970 |
| 43.00 | 16.487 | 0.8946 | 0.01400 | 253.68 | 417.04 | 163.36 | 1.1790 | 1.6957 |
| 44.00 | 16.885 | 0.8983 | 0.01364 | 255.03 | 417.18 | 162.15 | 1.1831 | 1.6944 |
| 45.00 | 17.290 | 0.9020 | 0.01329 | 256.38 | 417.32 | 160.93 | 1.1873 | 1.6931 |
| 46.00 | 17.702 | 0.9058 | 0.01295 | 257.74 | 417.44 | 159.70 | 1.1914 | 1.6918 |
| 47.00 | 18.121 | 0.9097 | 0.01261 | 259.11 | 417.56 | 158.45 | 1.1956 | 1.6905 |
| 48.00 | 18.548 | 0.9137 | 0.01229 | 260.49 | 417.66 | 157.18 | 1.1998 | 1.6892 |
| 49.00 | 18.982 | 0.9178 | 0.01198 | 261.87 | 417.76 | 155.90 | 1.2039 | 1.6878 |
| 50.00 | 19.423 | 0.9219 | 0.01167 | 263.25 | 417.85 | 154.60 | 1.2081 | 1.6865 |
| 51.00 | 19.872 | 0.9261 | 0.01137 | 264.65 | 417.93 | 153.28 | 1.2123 | 1.6851 |
| 52.00 | 20.328 | 0.9304 | 0.01108 | 266.05 | 417.99 | 151.94 | 1.2165 | 1.6838 |
| 53.00 | 20.793 | 0.9349 | 0.01080 | 267.46 | 418.05 | 150.59 | 1.2207 | 1.6824 |
| 54.00 | 21.265 | 0.9394 | 0.01052 | 268.88 | 418.09 | 149.21 | 1.2249 | 1.6810 |
| 55.00 | 21.744 | 0.9440 | 0.01025 | 270.31 | 418.13 | 147.82 | 1.2291 | 1.6796 |
| 56.00 | 22.232 | 0.9487 | 0.00999 | 271.74 | 418.15 | 146.40 | 1.2333 | 1.6781 |
| 57.00 | 22.728 | 0.9535 | 0.00973 | 273.19 | 418.16 | 144.97 | 1.2376 | 1.6767 |
| 58.00 | 23.232 | 0.9585 | 0.00948 | 274.64 | 418.15 | 143.51 | 1.2418 | 1.6752 |
| 59.00 | 23.745 | 0.9635 | 0.00924 | 276.11 | 418.13 | 142.02 | 1.2461 | 1.6737 |
| 60.00 | 24.266 | 0.9687 | 0.00900 | 277.58 | 418.10 | 140.52 | 1.2504 | 1.6722 |
| 61.00 | 24.795 | 0.9741 | 0.00877 | 279.07 | 418.05 | 138.98 | 1.2547 | 1.6706 |
| 62.00 | 25.333 | 0.9796 | 0.00854 | 280.57 | 417.99 | 137.42 | 1.2590 | 1.6690 |
| 63.00 | 25.879 | 0.9852 | 0.00832 | 282.08 | 417.91 | 135.83 | 1.2633 | 1.6674 |
| 64.00 | 26.435 | 0.9910 | 0.00810 | 283.60 | 417.81 | 134.21 | 1.2677 | 1.6658 |
| 65.00 | 26.999 | 0.9970 | 0.00789 | 285.13 | 417.70 | 132.56 | 1.2721 | 1.6641 |

Table of saturated values for: R22, CHClF2, Chlorodifluoromethane

| T °C | p Bar | v _l dm ³ /kg | v _g m ³ /kg | h _l kJ/kg | h _g kJ/kg | R kJ/kg | s _l kJ/(kg K) | s _g kJ/(kg K) |
|---------|----------|---------------------------------------|--------------------------------------|-------------------------|-------------------------|------------|-----------------------------|-----------------------------|
| 66.00 | 27.573 | 1.0031 | 0.00768 | 286.68 | 417.56 | 130.88 | 1.2765 | 1.6624 |
| 67.00 | 28.155 | 1.0095 | 0.00748 | 288.24 | 417.41 | 129.17 | 1.2809 | 1.6606 |
| 68.00 | 28.747 | 1.0161 | 0.00728 | 289.82 | 417.24 | 127.41 | 1.2854 | 1.6588 |
| 69.00 | 29.348 | 1.0228 | 0.00708 | 291.42 | 417.04 | 125.62 | 1.2898 | 1.6570 |
| 70.00 | 29.959 | 1.0298 | 0.00689 | 293.03 | 416.82 | 123.79 | 1.2944 | 1.6551 |
| 71.00 | 30.579 | 1.0371 | 0.00670 | 294.66 | 416.57 | 121.91 | 1.2989 | 1.6532 |
| 72.00 | 31.210 | 1.0446 | 0.00652 | 296.31 | 416.30 | 119.99 | 1.3035 | 1.6512 |
| 73.00 | 31.850 | 1.0525 | 0.00634 | 297.98 | 416.00 | 118.02 | 1.3082 | 1.6491 |
| 74.00 | 32.500 | 1.0606 | 0.00616 | 299.69 | 415.67 | 115.98 | 1.3129 | 1.6470 |
| 75.00 | 33.161 | 1.0691 | 0.00598 | 301.40 | 415.31 | 113.91 | 1.3176 | 1.6448 |
| 76.00 | 33.832 | 1.0780 | 0.00581 | 303.13 | 414.91 | 111.78 | 1.3224 | 1.6425 |
| 77.00 | 34.513 | 1.0873 | 0.00564 | 304.89 | 414.48 | 109.59 | 1.3272 | 1.6402 |
| 78.00 | 35.205 | 1.0970 | 0.00548 | 306.71 | 414.00 | 107.29 | 1.3322 | 1.6377 |
| 79.00 | 35.909 | 1.1073 | 0.00531 | 308.54 | 413.48 | 104.93 | 1.3372 | 1.6351 |
| 80.00 | 36.623 | 1.1181 | 0.00515 | 310.42 | 412.91 | 102.49 | 1.3422 | 1.6325 |
| 81.00 | 37.348 | 1.1295 | 0.00499 | 312.33 | 412.28 | 99.95 | 1.3474 | 1.6297 |
| 82.00 | 38.086 | 1.1416 | 0.00483 | 314.29 | 411.60 | 97.31 | 1.3527 | 1.6267 |
| 83.00 | 38.834 | 1.1545 | 0.00467 | 316.30 | 410.85 | 94.55 | 1.3581 | 1.6236 |
| 84.00 | 39.595 | 1.1684 | 0.00452 | 318.36 | 410.02 | 91.66 | 1.3637 | 1.6203 |
| 85.00 | 40.368 | 1.1832 | 0.00436 | 320.50 | 409.11 | 88.61 | 1.3694 | 1.6168 |
| 86.00 | 41.154 | 1.1994 | 0.00420 | 322.70 | 408.10 | 85.40 | 1.3753 | 1.6130 |
| 87.00 | 41.952 | 1.2170 | 0.00405 | 325.00 | 406.98 | 81.98 | 1.3814 | 1.6090 |
| 88.00 | 42.763 | 1.2363 | 0.00389 | 327.40 | 405.72 | 78.32 | 1.3878 | 1.6046 |
| 89.00 | 43.587 | 1.2579 | 0.00373 | 329.92 | 404.30 | 74.38 | 1.3945 | 1.5998 |
| 90.00 | 44.425 | 1.2823 | 0.00357 | 332.60 | 402.67 | 70.07 | 1.4015 | 1.5945 |
| 91.00 | 45.277 | 1.3103 | 0.00340 | 335.49 | 400.77 | 65.27 | 1.4092 | 1.5884 |
| 92.00 | 46.144 | 1.3436 | 0.00322 | 338.65 | 398.52 | 59.87 | 1.4175 | 1.5815 |
| 93.00 | 47.025 | 1.3845 | 0.00303 | 342.19 | 395.75 | 53.56 | 1.4269 | 1.5732 |
| 94.00 | 47.922 | 1.4384 | 0.00282 | 346.35 | 392.13 | 45.78 | 1.4379 | 1.5626 |
| 95.00 | 48.835 | 1.5206 | 0.00255 | 351.76 | 386.72 | 34.96 | 1.4522 | 1.5472 |
| 96.00 | 49.764 | 1.8290 | 0.00207 | 365.32 | 373.80 | 8.48 | 1.4886 | 1.5116 |
| 96.00 | 49.774 | 1.9060 | 0.00191 | 367.97 | 367.97 | 0.00 | 1.4958 | 1.4958 |

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M.J. Skovrup & H.J.H Knudsen

PT. TEACH INTEGRATION
Komp. Pertokoan Ciptapuri Blok GG/9 Sekupang Batam

Phone: +62 778 323 768
Fax: +62 778 323 768
E-mail: teach.integration@gmail.com

<http://teachintegration.wordpress.com>