

| Ostwald optimal colours (o) of maximum (m) C <sub>AB</sub> for D65, Y <sub>w</sub> =100, Y <sub>m</sub> =520_770, LINYAB data          |                                 |                  |                  |                  |                 |        |         |                 |                                 |                                 |         |         |     | % |
|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|------------------|------------------|------------------|-----------------|--------|---------|-----------------|---------------------------------|---------------------------------|---------|---------|-----|---|
| i <sub>1</sub> , λ <sub>1</sub>                                                                                                        | i <sub>2</sub> , λ <sub>2</sub> | Y <sub>100</sub> | A <sub>100</sub> | B <sub>100</sub> | C <sub>AB</sub> | a      | b       | h <sub>AB</sub> | i <sub>d</sub> , λ <sub>d</sub> | i <sub>c</sub> , λ <sub>c</sub> | Code    |         | %   |   |
| 0                                                                                                                                      | 405                             | 32               | 561              | 58.2             | -22.74          | -17.89 | 28.94   | 0.5596          | -0.743                          | 218.1                           | 16 483  | 37 589  | Cm  | % |
| 6                                                                                                                                      | 435                             | 32               | 562              | 58.79            | -26.78          | -9.88  | 28.55   | 0.4948          | -0.6036                         | 200.2                           | 17 486  | 42 610  |     | % |
| 10                                                                                                                                     | 450                             | 32               | 563              | 59.42            | -33.54          | 4.93   | 33.9    | 0.3859          | -0.3525                         | 171.6                           | 19 496  | -1 496c |     | % |
| 12                                                                                                                                     | 460                             | 33               | 565              | 60.32            | -36.45          | 12.66  | 38.58   | 0.3461          | -0.2256                         | 160.8                           | 21 505  | -1 505c |     | % |
| 12                                                                                                                                     | 465                             | 33               | 567              | 61.66            | -36.65          | 13.24  | 38.97   | 0.356           | -0.2207                         | 160.1                           | 21 506  | -1 506c |     | % |
| 14                                                                                                                                     | 470                             | 33               | 569              | 62.72            | -38.14          | 19.32  | 42.76   | 0.3422          | -0.1274                         | 153.1                           | 24 520  | -1 520c |     | % |
| 15                                                                                                                                     | 475                             | 34               | 573              | 65.29            | -38.28          | 22.47  | 44.39   | 0.364           | -0.0913                         | 149.5                           | 25 528  | -1 528c | Gm  | % |
| 16                                                                                                                                     | 480                             | 36               | 580              | 69.95            | -37.48          | 26.04  | 45.64   | 0.4146          | -0.0632                         | 145.2                           | 27 537  | -1 537c |     | % |
| 17                                                                                                                                     | 485                             | 39               | 595              | 78.75            | -32.73          | 31.0   | 45.09   | 0.5347          | -0.0418                         | 136.5                           | 29 548  | -1 548c |     | % |
| 18                                                                                                                                     | 490                             | -1               | 490c             | 93.8             | -12.06          | 38.4   | 40.25   | 0.8218          | -0.0261                         | 107.4                           | 33 565  | 11 459  | max | % |
| 19                                                                                                                                     | 495                             | -1               | 495c             | 92.3             | -10.68          | 38.39  | 39.85   | 0.8346          | -0.0195                         | 105.5                           | 33 566  | 12 462  |     | % |
| 20                                                                                                                                     | 500                             | -1               | 500c             | 90.42            | -8.91           | 38.07  | 39.1    | 0.8518          | -0.0144                         | 103.1                           | 33 567  | 12 464  |     | % |
| 22                                                                                                                                     | 510                             | -1               | 510c             | 85.27            | -4.15           | 36.48  | 36.72   | 0.9016          | -0.0076                         | 96.5                            | 33 569  | 13 469  |     | % |
| 23                                                                                                                                     | 520                             | -1               | 519c             | 81.98            | -1.26           | 35.24  | 35.26   | 0.935           | -0.0056                         | 92.0                            | 34 570  | 14 471  | Ym  | % |
| 25                                                                                                                                     | 530                             | -1               | 529c             | 74.04            | 5.15            | 32.02  | 32.43   | 1.0201          | -0.0031                         | 80.8                            | 34 573  | 15 475  |     | % |
| 27                                                                                                                                     | 540                             | -1               | 539c             | 64.9             | 11.57           | 28.16  | 30.44   | 1.1288          | -0.0016                         | 67.6                            | 35 577  | 15 478  |     | % |
| 28                                                                                                                                     | 545                             | -1               | 544c             | 60.13            | 14.5            | 26.11  | 29.87   | 1.1917          | -0.0012                         | 60.9                            | 35 579  | 15 479  |     | % |
| 29                                                                                                                                     | 550                             | -1               | 549c             | 55.26            | 17.18           | 24.01  | 29.53   | 1.2613          | -0.0009                         | 54.4                            | 36 582  | 16 480  |     | % |
| 30                                                                                                                                     | 555                             | -1               | 554c             | 50.4             | 19.49           | 21.91  | 29.33   | 1.3372          | -0.0007                         | 48.3                            | 36 584  | 16 481  |     | % |
| 32                                                                                                                                     | 560                             | -1               | 560c             | 41.0             | 22.8            | 17.83  | 28.95   | 1.5064          | -0.0005                         | 38.0                            | 37 589  | 16 483  |     | % |
| 380                                                                                                                                    | 770                             | 100.0            | 0.0              | 0.0              | 0.01            | 0.9504 | -0.4355 | 0.0             |                                 |                                 |         |         |     | % |
| Ostwald optimal colours (o) of maximum (m) C <sub>AB</sub> for D65, Y <sub>w</sub> =100, Y <sub>m</sub> =770_520, LINYAB complementary |                                 |                  |                  |                  |                 |        |         |                 |                                 |                                 |         |         |     | % |
| i <sub>1</sub> , λ <sub>1</sub>                                                                                                        | i <sub>2</sub> , λ <sub>2</sub> | Y <sub>100</sub> | A <sub>100</sub> | B <sub>100</sub> | C <sub>AB</sub> | a      | b       | h <sub>AB</sub> | i <sub>d</sub> , λ <sub>d</sub> | i <sub>c</sub> , λ <sub>c</sub> | Code    |         | %   |   |
| 32                                                                                                                                     | 561                             | 0                | 405              | 41.79            | 22.74           | 17.89  | 28.94   | 1.4946          | -0.0072                         | 38.1                            | 37 589  | 16 483  | Rm  | % |
| 32                                                                                                                                     | 562                             | 6                | 435              | 41.2             | 26.78           | 9.88   | 28.55   | 1.6006          | -0.1956                         | 20.2                            | 42 610  | 17 486  |     | % |
| 32                                                                                                                                     | 563                             | 10               | 450              | 40.57            | 33.54           | -4.93  | 33.9    | 1.7771          | -0.557                          | 351.6                           | -1 496c | 19 496  |     | % |
| 33                                                                                                                                     | 565                             | 12               | 460              | 39.67            | 36.45           | -12.66 | 38.58   | 1.8691          | -0.7547                         | 340.8                           | -1 505c | 21 505  |     | % |
| 33                                                                                                                                     | 567                             | 12               | 465              | 38.33            | 36.65           | -13.24 | 38.97   | 1.9064          | -0.781                          | 340.1                           | -1 506c | 21 506  |     | % |
| 33                                                                                                                                     | 569                             | 14               | 470              | 37.27            | 38.14           | -19.32 | 42.76   | 1.9738          | -0.954                          | 333.1                           | -1 520c | 24 520  |     | % |
| 34                                                                                                                                     | 573                             | 15               | 475              | 34.7             | 38.28           | -22.47 | 44.39   | 2.0536          | -1.083                          | 329.5                           | -1 528c | 25 528  | Mm  | % |
| 36                                                                                                                                     | 580                             | 16               | 480              | 30.04            | 37.48           | -26.04 | 45.64   | 2.1982          | -1.3026                         | 325.2                           | -1 537c | 27 537  |     | % |
| 39                                                                                                                                     | 595                             | 17               | 485              | 21.24            | 32.73           | -31.0  | 45.09   | 2.4914          | -1.8952                         | 316.5                           | -1 548c | 29 548  |     | % |
| -1                                                                                                                                     | 490c                            | 18               | 490              | 6.19             | 12.06           | -38.4  | 40.25   | 2.899           | -6.6372                         | 287.4                           | 11 459  | 33 565  | min | % |
| -1                                                                                                                                     | 495c                            | 19               | 495              | 7.69             | 10.68           | -38.39 | 39.85   | 2.3392          | -5.4245                         | 285.5                           | 12 462  | 33 566  |     | % |
| -1                                                                                                                                     | 500c                            | 20               | 500              | 9.57             | 8.91            | -38.07 | 39.1    | 1.8814          | -4.4105                         | 283.1                           | 12 464  | 33 567  |     | % |
| -1                                                                                                                                     | 510c                            | 22               | 510              | 14.72            | 4.15            | -36.48 | 36.72   | 1.2328          | -2.9143                         | 276.5                           | 13 469  | 33 569  |     | % |
| -1                                                                                                                                     | 519c                            | 23               | 520              | 18.01            | 1.26            | -35.24 | 35.26   | 1.0204          | -2.3925                         | 272.0                           | 14 471  | 34 570  | Bm  | % |
| -1                                                                                                                                     | 529c                            | 25               | 530              | 25.95            | -5.15           | -32.02 | 32.43   | 0.7516          | -1.6693                         | 260.8                           | 15 475  | 34 573  |     | % |
| -1                                                                                                                                     | 539c                            | 27               | 540              | 35.09            | -11.57          | -28.16 | 30.44   | 0.6205          | -1.238                          | 247.6                           | 15 478  | 35 577  |     | % |
| -1                                                                                                                                     | 544c                            | 28               | 545              | 39.86            | -14.5           | -26.11 | 29.87   | 0.5865          | -1.0906                         | 240.9                           | 15 479  | 35 579  |     | % |
| -1                                                                                                                                     | 549c                            | 29               | 550              | 44.73            | -17.18          | -24.01 | 29.53   | 0.5663          | -0.9725                         | 234.4                           | 16 480  | 36 582  |     | % |
| -1                                                                                                                                     | 554c                            | 30               | 555              | 49.59            | -19.49          | -21.91 | 29.33   | 0.5572          | -0.8774                         | 228.3                           | 16 481  | 36 584  |     | % |
| -1                                                                                                                                     | 560c                            | 32               | 560              | 58.99            | -22.8           | -17.83 | 28.95   | 0.5638          | -0.7379                         | 218.0                           | 16 483  | 37 589  |     | % |
| 380                                                                                                                                    | 770                             | 100.0            | 0.0              | 0.0              | 0.01            | 0.9504 | -0.4355 | 0.0             |                                 |                                 |         |         |     | % |

| Ostwald optimal colours (o) of maximum (m) C <sub>AB</sub> for D65, Y <sub>w</sub> =100, Y <sub>m</sub> =520_770, LINYAB data |                                 |                  |                  |                  |                 |        |         |                 |                                 |                                 |        |         |     |  | % |
|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------|------------------|------------------|------------------|-----------------|--------|---------|-----------------|---------------------------------|---------------------------------|--------|---------|-----|--|---|
| i <sub>1</sub> , λ <sub>1</sub>                                                                                               | i <sub>2</sub> , λ <sub>2</sub> | Y <sub>100</sub> | A <sub>100</sub> | B <sub>100</sub> | C <sub>AB</sub> | a      | b       | h <sub>AB</sub> | i <sub>d</sub> , λ <sub>d</sub> | i <sub>c</sub> , λ <sub>c</sub> | Code   |         |     |  | % |
| 0                                                                                                                             | 405                             | 32               | 561              | 58.2             | -22.74          | -17.89 | 28.94   | 0.5596          | -0.743                          | 218.1                           | 16 483 | 37 589  | Cm  |  | % |
| 6                                                                                                                             | 435                             | 32               | 562              | 58.79            | -26.78          | -9.88  | 28.55   | 0.4948          | -0.6036                         | 200.2                           | 17 486 | 42 610  |     |  | % |
| 10                                                                                                                            | 450                             | 32               | 563              | 59.42            | -33.54          | 4.93   | 33.9    | 0.3859          | -0.3525                         | 171.6                           | 19 496 | -1 496c |     |  | % |
| 12                                                                                                                            | 460                             | 33               | 565              | 60.32            | -36.45          | 12.66  | 38.58   | 0.3461          | -0.2256                         | 160.8                           | 21 505 | -1 505c |     |  | % |
| 12                                                                                                                            | 465                             | 33               | 567              | 61.66            | -36.65          | 13.24  | 38.97   | 0.356           | -0.2207                         | 160.1                           | 21 506 | -1 506c |     |  | % |
| 14                                                                                                                            | 470                             | 33               | 569              | 62.72            | -38.14          | 19.32  | 42.76   | 0.3422          | -0.1274                         | 153.1                           | 24 520 | -1 520c |     |  | % |
| 15                                                                                                                            | 475                             | 34               | 573              | 65.29            | -38.28          | 22.47  | 44.39   | 0.364           | -0.0913                         | 149.5                           | 25 528 | -1 528c | Gm  |  | % |
| 16                                                                                                                            | 480                             | 36               | 580              | 69.95            | -37.48          | 26.04  | 45.64   | 0.4146          | -0.0632                         | 145.2                           | 27 537 | -1 537c |     |  | % |
| 17                                                                                                                            | 485                             | 39               | 595              | 78.75            | -32.73          | 31.0   | 45.09   | 0.5347          | -0.0418                         | 136.5                           | 29 548 | -1 548c |     |  | % |
| 18                                                                                                                            | 490                             | -1               | 490c             | 93.8             | -12.06          | 38.4   | 40.25   | 0.8218          | -0.0261                         | 107.4                           | 33 565 | 11 459  | max |  | % |
| 19                                                                                                                            | 495                             | -1               | 495c             | 92.3             | -10.68          | 38.39  | 39.85   | 0.8346          | -0.0195                         | 105.5                           | 33 566 | 12 462  |     |  | % |
| 20                                                                                                                            | 500                             | -1               | 500c             | 90.42            | -8.91           | 38.07  | 39.1    | 0.8518          | -0.0144                         | 103.1                           | 33 567 | 12 464  |     |  | % |
| 22                                                                                                                            | 510                             | -1               | 510c             | 85.27            | -4.15           | 36.48  | 36.72   | 0.9016          | -0.0076                         | 96.5                            | 33 569 | 13 469  |     |  | % |
| 23                                                                                                                            | 520                             | -1               | 519c             | 81.98            | -1.26           | 35.24  | 35.26   | 0.935           | -0.0056                         | 92.0                            | 34 570 | 14 471  | Ym  |  | % |
| 25                                                                                                                            | 530                             | -1               | 529c             | 74.04            | 5.15            | 32.02  | 32.43   | 1.0201          | -0.0031                         | 80.8                            | 34 573 | 15 475  |     |  | % |
| 27                                                                                                                            | 540                             | -1               | 539c             | 64.9             | 11.57           | 28.16  | 30.44   | 1.1288          | -0.0016                         | 67.6                            | 35 577 | 15 478  |     |  | % |
| 28                                                                                                                            | 545                             | -1               | 544c             | 60.13            | 14.5            | 26.11  | 29.87   | 1.1917          | -0.0012                         | 60.9                            | 35 579 | 15 479  |     |  | % |
| 29                                                                                                                            | 550                             | -1               | 549c             | 55.26            | 17.18           | 24.01  | 29.53   | 1.2613          | -0.0009                         | 54.4                            | 36 582 | 16 480  |     |  | % |
| 30                                                                                                                            | 555                             | -1               | 554c             | 50.4             | 19.49           | 21.91  | 29.33   | 1.3372          | -0.0007                         | 48.3                            | 36 584 | 16 481  |     |  | % |
| 32                                                                                                                            | 560                             | -1               | 560c             | 41.0             | 22.8            | 17.83  | 28.95   | 1.5064          | -0.0005                         | 38.0                            | 37 589 | 16 483  |     |  | % |
| 380                                                                                                                           | 770                             | 100.0            | 0.0              | 0.0              | 0.01            | 0.9504 | -0.4355 | 0.0             |                                 |                                 |        |         |     |  | % |

| rgb* <sub>e,AB</sub> and CIE data of a elementary hue circle according to CIE R1-47 for Ostwald colours for CIE illuminant D65                                                                |       |       |       |       |                 |       |       |                 |                 |       |      |        |                  |                 |                      |                    |           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-----------------|-------|-------|-----------------|-----------------|-------|------|--------|------------------|-----------------|----------------------|--------------------|-----------|
| Xy <sub>y</sub> , abc <sub>AB</sub> , ABC <sub>AB</sub> , LabC* <sub>ab</sub> h <sub>ab</sub> data for relative spacing of elementary hue h <sub>AB</sub> of LINYAB for CIE 2 degree observer |       |       |       |       |                 |       |       |                 |                 |       |      |        |                  |                 |                      |                    |           |
| Elementary hue circle with 4 intended elementary hue angles: h <sub>AB</sub> = 17.7, 93.3, 159.1, 270.8 of LINYAB, and 16 intended hue angles:                                                |       |       |       |       |                 |       |       |                 |                 |       |      |        |                  |                 |                      |                    |           |
| 17.7 36.6 55.5 74.4 93.3 109.7 126.2 142.7 159.1 187.0 214.9 242.8 270.8 297.5 324.2 351.0                                                                                                    |       |       |       |       |                 |       |       |                 |                 |       |      |        |                  |                 |                      |                    |           |
| LINYAB data of CIE test colours 9 (R): 11.2 9.9 3.1, 10 (Y): 59.0 -1.2 20.9, 11 (G): 20.3 -7.2 2.7, 12 (B): 6.4 0.1 -8.2                                                                      |       |       |       |       |                 |       |       |                 |                 |       |      |        |                  |                 |                      |                    |           |
| no. <sub>AB</sub> Y                                                                                                                                                                           | x     | y     | a     | b     | c <sub>AB</sub> | A     | B     | C <sub>AB</sub> | h <sub>AB</sub> | L*    | a*   | b*     | C* <sub>ab</sub> | h <sub>ab</sub> | rgb* <sub>e,AB</sub> | Code <sub>AB</sub> |           |
| 000                                                                                                                                                                                           | 41.1  | 0.508 | 0.314 | 1.615 | -0.224          | 0.697 | 27.3  | 8.6             | 28.7            | 17.5  | 70.2 | 71.9   | 29.3             | 77.6            | 22.2                 | 1.00 0.00 0.00     | % R00Y #  |
| 001                                                                                                                                                                                           | 41.7  | 0.59  | 0.393 | 1.499 | -0.016          | 0.691 | 22.9  | 17.5            | 28.8            | 37.3  | 70.7 | 61.3   | 99.1             | 116.6           | 58.2                 | 1.00 0.25 0.00     | % R25Y #  |
| 002                                                                                                                                                                                           | 56.0  | 0.554 | 0.444 | 1.249 | 0.0             | 0.527 | 16.7  | 24.3            | 29.5            | 55.5  | 79.6 | 39.3   | 135.2            | 140.8           | 73.7                 | 1.00 0.50 0.00     | % R50Y #  |
| 003                                                                                                                                                                                           | 69.3  | 0.516 | 0.481 | 1.072 | -0.002          | 0.45  | 8.5   | 30.0            | 31.2            | 74.2  | 86.7 | 18.2   | 143.3            | 144.5           | 82.7                 | 1.00 0.75 0.00     | % R75Y #  |
| 004                                                                                                                                                                                           | 83.1  | 0.476 | 0.515 | 0.923 | -0.006          | 0.43  | -2.1  | 35.6            | 35.7            | 93.5  | 93.0 | -4.4   | 142.7            | 142.8           | 91.7                 | 1.00 1.00 0.00     | % Y00G #  |
| 005                                                                                                                                                                                           | 92.9  | 0.429 | 0.533 | 0.805 | -0.027          | 0.433 | -13.4 | 37.9            | 40.2            | 109.5 | 97.1 | -26.2  | 117.8            | 120.7           | 102.5                | 0.75 1.00 0.00     | % Y25G #  |
| 006                                                                                                                                                                                           | 84.5  | 0.373 | 0.575 | 0.649 | -0.035          | 0.5   | -25.4 | 33.8            | 42.3            | 126.9 | 93.6 | -56.2  | 107.3            | 121.2           | 117.6                | 0.50 1.00 0.00     | % Y50G #  |
| 007                                                                                                                                                                                           | 71.9  | 0.276 | 0.634 | 0.435 | -0.056          | 0.639 | -37.0 | 27.2            | 46.0            | 143.6 | 87.9 | -102.5 | 88.5             | 135.4           | 139.2                | 0.25 1.00 0.00     | % Y75G #  |
| 008                                                                                                                                                                                           | 61.7  | 0.188 | 0.532 | 0.354 | -0.21           | 0.637 | -36.8 | 13.9            | 39.3            | 159.2 | 82.8 | -119.3 | 36.7             | 124.8           | 162.8                | 0.00 1.00 0.00     | % G00B #  |
| 009                                                                                                                                                                                           | 59.0  | 0.166 | 0.375 | 0.443 | -0.487          | 0.509 | -29.9 | -3.0            | 30.1            | 185.8 | 81.3 | -94.1  | -6.4             | 94.3            | 183.9                | 0.00 1.00 0.50     | % G25B #  |
| 010                                                                                                                                                                                           | 58.2  | 0.163 | 0.296 | 0.552 | -0.727          | 0.494 | -23.2 | -17.0           | 28.7            | 216.2 | 80.8 | -69.1  | -31.1            | 75.8            | 204.2                | 0.00 1.00 1.00     | % G50B #  |
| 011                                                                                                                                                                                           | 38.6  | 0.134 | 0.227 | 0.592 | -1.124          | 0.776 | -13.8 | -26.6           | 30.0            | 242.5 | 68.5 | -53.0  | -54.1            | 75.7            | 225.6                | 0.00 0.50 1.00     | % G75B #  |
| 012                                                                                                                                                                                           | 18.7  | 0.127 | 0.129 | 0.985 | -2.302          | 1.867 | 0.6   | -34.9           | 34.9            | 271.0 | 50.3 | 3.4    | -84.8            | 84.9            | 272.3                | 0.00 0.00 1.00     | % B00R #  |
| 013                                                                                                                                                                                           | 10.6  | 0.204 | 0.075 | 2.711 | -3.816          | 3.812 | 18.8  | -36.1           | 40.7            | 297.5 | 39.0 | 99.2   | -100.7           | 141.4           | 314.5                | 0.50 0.00 1.00     | % B25R #  |
| 014                                                                                                                                                                                           | 29.3  | 0.338 | 0.152 | 2.224 | -1.338          | 1.561 | 37.3  | -26.4           | 45.8            | 324.6 | 61.0 | 108.8  | -60.3            | 124.4           | 331.0                | 1.00 0.00 1.00     | % B50R #  |
| 015                                                                                                                                                                                           | 40.5  | 0.423 | 0.237 | 1.784 | -0.572          | 0.845 | 33.8  | -5.5            | 34.2            | 350.6 | 69.8 | 86.4   | -14.1            | 87.5            | 350.7                | 1.00 0.00 0.50     | % B75R #  |
| 016                                                                                                                                                                                           | 41.1  | 0.508 | 0.314 | 1.615 | -0.224          | 0.697 | 27.3  | 8.6             | 28.7            | 17.5  | 70.2 | 71.9   | 29.3             | 77.6            | 22.2                 | 1.00 0.00 0.00     | % R00Y #  |
| CIEXYZ data of CIE test colours 9 (R): 20.6 11.2 4.3, 10 (Y): 54.8 59.0 12.0, 11 (G): 12.1 20.3 15.3, 12 (B): 6.2 6.4 27.6                                                                    |       |       |       |       |                 |       |       |                 |                 |       |      |        |                  |                 |                      |                    |           |
| 5 step equidistant grey scale with intended lightness: L* = 0.0, 25.0, 50.0, 75.0, 100.0                                                                                                      |       |       |       |       |                 |       |       |                 |                 |       |      |        |                  |                 |                      |                    |           |
| 000                                                                                                                                                                                           | 0.0   | 0.0   | 0.0   | 0.0   | 0.0             | 1.045 | 0.0   | 0.0             | 0.0             | 0.0   | 0.0  | 0.0    | 0.0              | 0.0             | 0.0                  | 0.00 0.00 0.00     | % N000W # |
| 001                                                                                                                                                                                           | 4.4   | 0.312 | 0.329 | 0.95  | -0.435          | 0.01  | 0.0   | 0.0             | 0.0             | 77.1  | 25.0 | 0.0    | 0.0              | 0.0             | 0.0                  | 0.25 0.25 0.25     | % N025W # |
| 002                                                                                                                                                                                           | 18.4  | 0.312 | 0.329 | 0.95  | -0.435          | 0.01  | 0.0   | 0.0             | 0.0             | 57.4  | 50.0 | 0.0    | 0.0              | 0.0             | 0.0                  | 0.50 0.50 0.50     | % N050W # |
| 003                                                                                                                                                                                           | 48.2  | 0.312 | 0.329 | 0.95  | -0.435          | 0.01  | 0.0   | 0.0             | 0.0             | 22.9  | 75.0 | 0.0    | 0.0              | 0.0             | 0.0                  | 0.75 0.75 0.75     | % N075W # |
| 004                                                                                                                                                                                           | 100.0 | 0.312 | 0.329 | 0.95  | -0.435          | 0.01  | 0.0   | 0.0             | 0.0             | 100.0 | 0.0  | 0.0    | 0.0              | 0.0             | 0.0                  | 1.00 1.00 1.00     | % N100W # |

| Ostwald optimal colours (o) of maximum (m) C <sub>AB</sub> for D65, Y <sub>w,10</sub> =100, Y <sub>m</sub> =520_770, LINYAB data          |                                 |                  |                  |                  |                 |        |         |                 |                                 |                                 |         |         |     | % |
|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|------------------|------------------|------------------|-----------------|--------|---------|-----------------|---------------------------------|---------------------------------|---------|---------|-----|---|
| i <sub>1</sub> , λ <sub>1</sub>                                                                                                           | i <sub>2</sub> , λ <sub>2</sub> | Y <sub>100</sub> | A <sub>100</sub> | B <sub>100</sub> | C <sub>AB</sub> | a      | b       | h <sub>AB</sub> | i <sub>d</sub> , λ <sub>d</sub> | i <sub>c</sub> , λ <sub>c</sub> | Code    |         | %   |   |
| 0                                                                                                                                         | 405                             | 31               | 556              | 56.57            | -21.89          | -18.32 | 28.54   | 0.5611          | -0.7532                         | 219.9                           | 15 476  | 37 585  | Cm  | % |
| 6                                                                                                                                         | 435                             | 31               | 557              | 57.41            | -26.44          | -8.79  | 27.86   | 0.4876          | -0.5825                         | 198.4                           | 16 480  | 44 621  |     | % |
| 10                                                                                                                                        | 450                             | 31               | 559              | 57.53            | -32.48          | 6.09   | 33.05   | 0.3834          | -0.3234                         | 169.3                           | 18 491  | -1 491c |     | % |
| 11                                                                                                                                        | 460                             | 32               | 562              | 59.27            | -33.9           | 10.52  | 35.5    | 0.3761          | -0.2517                         | 162.7                           | 19 498  | -1 498c |     | % |
| 12                                                                                                                                        | 465                             | 33               | 565              | 60.91            | -34.93          | 14.56  | 37.84   | 0.3747          | -0.1903                         | 157.3                           | 21 506  | -1 506c |     | % |
| 14                                                                                                                                        | 470                             | 34               | 570              | 63.07            | -35.18          | 20.67  | 40.8    | 0.3903          | -0.1016                         | 149.5                           | 24 522  | -1 522c |     | % |
| 15                                                                                                                                        | 475                             | 35               | 579              | 68.64            | -33.55          | 24.85  | 41.75   | 0.4593          | -0.0672                         | 143.4                           | 26 533  | -1 533c | Gm  | % |
| 16                                                                                                                                        | 480                             | 41               | 606              | 81.94            | -23.65          | 31.88  | 39.7    | 0.6594          | -0.0401                         | 126.5                           | 30 550  | -1 550c |     | % |
| 16                                                                                                                                        | 485                             | -1               | 484c             | 92.3             | -10.45          | 36.33  | 37.8    | 0.8348          | -0.0356                         | 106.0                           | 32 560  | 10 454  |     | % |
| 18                                                                                                                                        | 490                             | -1               | 490c             | 89.06            | -7.57           | 36.55  | 37.33   | 0.863           | -0.0188                         | 101.7                           | 32 562  | 11 459  | max | % |
| 19                                                                                                                                        | 495                             | -1               | 495c             | 87.05            | -5.68           | 36.18  | 36.62   | 0.8828          | -0.0136                         | 98.9                            | 32 563  | 12 461  |     | % |
| 19                                                                                                                                        | 500                             | -1               | 499c             | 87.05            | -5.68           | 36.18  | 36.62   | 0.8828          | -0.0136                         | 98.9                            | 32 563  | 12 461  |     | % |
| 22                                                                                                                                        | 510                             | -1               | 510c             | 79.1             | 1.43            | 33.55  | 33.58   | 0.9662          | -0.0051                         | 87.5                            | 33 567  | 13 466  |     | % |
| 23                                                                                                                                        | 520                             | -1               | 519c             | 75.81            | 4.11            | 32.27  | 32.53   | 1.0024          | -0.0036                         | 82.7                            | 33 568  | 13 468  | Ym  | % |
| 26                                                                                                                                        | 530                             | -1               | 530c             | 64.17            | 12.31           | 27.48  | 30.11   | 1.14            | -0.001                          | 65.8                            | 34 573  | 14 472  |     | % |
| 27                                                                                                                                        | 540                             | -1               | 539c             | 59.9             | 14.81           | 25.68  | 29.65   | 1.1955          | -0.0005                         | 60.0                            | 35 576  | 14 473  |     | % |
| 28                                                                                                                                        | 545                             | -1               | 544c             | 55.54            | 17.09           | 23.83  | 29.32   | 1.2559          | -0.0002                         | 54.3                            | 35 578  | 14 474  |     | % |
| 29                                                                                                                                        | 550                             | -1               | 549c             | 51.12            | 19.09           | 21.94  | 29.08   | 1.3215          | -0.0001                         | 48.9                            | 36 580  | 15 475  |     | % |
| 31                                                                                                                                        | 555                             | -1               | 555c             | 42.37            | 21.98           | 18.19  | 28.53   | 1.4668          | 0.0                             | 39.6                            | 37 586  | 15 476  |     | % |
| 32                                                                                                                                        | 560                             | 10               | 451              | 40.04            | 32.52           | -6.18  | 33.11   | 1.7604          | -0.5838                         | 349.2                           | -1 492c | 18 492  |     | % |
| 380                                                                                                                                       | 770                             | 100.0            | 0.0              | 0.0              | 0.01            | 0.9481 | -0.4293 | 0.0             |                                 |                                 |         |         |     | % |
| Ostwald optimal colours (o) of maximum (m) C <sub>AB</sub> for D65, Y <sub>w,10</sub> =100, Y <sub>m</sub> =770_520, LINYAB complementary |                                 |                  |                  |                  |                 |        |         |                 |                                 |                                 |         |         |     | % |
| i <sub>1</sub> , λ <sub>1</sub>                                                                                                           | i <sub>2</sub> , λ <sub>2</sub> | Y <sub>100</sub> | A <sub>100</sub> | B <sub>100</sub> | C <sub>AB</sub> | a      | b       | h <sub>AB</sub> | i <sub>d</sub> , λ <sub>d</sub> | i <sub>c</sub> , λ <sub>c</sub> | Code    |         | %   |   |
| 31                                                                                                                                        | 556                             | 0                | 405              | 43.42            | 21.89           | 18.32  | 28.54   | 1.4522          | -0.0074                         | 39.9                            | 37 585  | 15 476  | Rm  | % |
| 31                                                                                                                                        | 557                             | 6                | 435              | 42.58            | 26.44           | 8.79   | 27.86   | 1.5691          | -0.2226                         | 18.4                            | 44 621  | 16 480  |     | % |
| 31                                                                                                                                        | 559                             | 10               | 450              | 42.46            | 32.48           | -6.09  | 33.05   | 1.713           | -0.5727                         | 349.3                           | -1 491c | 18 491  |     | % |
| 32                                                                                                                                        | 562                             | 11               | 460              | 40.72            | 33.9            | -10.52 | 35.5    | 1.7807          | -0.6879                         | 342.7                           | -1 498c | 19 498  |     | % |
| 33                                                                                                                                        | 565                             | 12               | 465              | 39.08            | 34.93           | -14.56 | 37.84   | 1.8419          | -0.8019                         | 337.3                           | -1 506c | 21 506  |     | % |
| 34                                                                                                                                        | 570                             | 14               | 470              | 36.92            | 35.18           | -20.67 | 40.8    | 1.901           | -0.9891                         | 329.5                           | -1 522c | 24 522  |     | % |
| 35                                                                                                                                        | 579                             | 15               | 475              | 31.35            | 33.55           | -24.85 | 41.75   | 2.0184          | -1.2222                         | 323.4                           | -1 533c | 26 533  | Mm  | % |
| 41                                                                                                                                        | 606                             | 16               | 480              | 18.05            | 23.65           | -31.88 | 39.7    | 2.2587          | -2.1959                         | 306.5                           | -1 550c | 30 550  |     | % |
| -1                                                                                                                                        | 484c                            | 16               | 485              | 7.69             | 10.45           | -36.33 | 37.8    | 2.306           | -5.1484                         | 286.0                           | 10 454  | 32 560  |     | % |
| -1                                                                                                                                        | 490c                            | 18               | 490              | 10.93            | 7.57            | -36.55 | 37.33   | 1.6407          | -3.7725                         | 281.7                           | 11 459  | 32 562  | min | % |
| -1                                                                                                                                        | 495c                            | 19               | 495              | 12.94            | 5.68            | -36.18 | 36.62   | 1.3873          | -3.2239                         | 278.9                           | 12 461  | 32 563  |     | % |
| -1                                                                                                                                        | 499c                            | 19               | 500              | 12.94            | 5.68            | -36.18 | 36.62   | 1.3873          | -3.2239                         | 278.9                           | 12 461  | 32 563  |     | % |
| -1                                                                                                                                        | 510c                            | 22               | 510              | 20.89            | -1.43           | -33.55 | 33.58   | 0.8795          | -2.035                          | 267.5                           | 13 466  | 33 567  |     | % |
| -1                                                                                                                                        | 519c                            | 23               | 520              | 24.18            | -4.12           | -32.27 | 32.53   | 0.7777          | -1.7639                         | 262.7                           | 13 468  | 33 568  | Bm  | % |
| -1                                                                                                                                        | 530c                            | 26               | 530              | 35.82            | -12.31          | -27.48 | 30.11   | 0.6044          | -1.1965                         | 245.8                           | 14 472  | 34 573  |     | % |
| -1                                                                                                                                        | 539c                            | 27               | 540              | 40.09            | -14.81          | -25.68 | 29.65   | 0.5785          | -1.0699                         | 240.0                           | 14 473  | 35 576  |     | % |
| -1                                                                                                                                        | 544c                            | 28               | 545              | 44.45            | -17.09          | -23.83 | 29.32   | 0.5635          | -0.9653                         | 234.3                           | 14 474  | 35 578  |     | % |
| -1                                                                                                                                        | 549c                            | 29               | 550              | 48.87            | -19.09          | -21.94 | 29.08   | 0.5575          | -0.8782                         | 228.9                           | 15 475  | 36 580  |     | % |
| -1                                                                                                                                        | 555c                            | 31               | 555              | 57.62            | -21.98          | -18.19 | 28.53   | 0.5667          | -0.745                          | 219.6                           | 15 476  | 37 586  |     | % |
| 10                                                                                                                                        | 451                             | 32               | 560              | 59.95            | -32.52          | 6.18   | 33.11   | 0.4056          | -0.3261                         | 169.2                           | 18 492  | -1 492c |     | % |
| 380                                                                                                                                       | 770                             | 100.0            | 0.0              | 0.0              | 0.01            | 0.9481 | -0.4293 | 0.0             |                                 |                                 |         |         |     | % |

|     |       |       |      |       |        |      |     |     |     |      |       |     |     |     |     |      |      |      |           |
|-----|-------|-------|------|-------|--------|------|-----|-----|-----|------|-------|-----|-----|-----|-----|------|------|------|-----------|
| 000 | 0.0   | 0.0   | 0.0  | 0.0   | 0.0    | 1.04 | 0.0 | 0.0 | 0.0 | 0.0  | 0.0   | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | % N000W # |
| 001 | 4.4   | 0.313 | 0.33 | 0.948 | -0.429 | 0.01 | 0.0 | 0.0 | 0.0 | 77.0 | 25.0  | 0.0 | 0.0 | 0.0 | 0.0 | 0.25 | 0.25 | 0.25 | % N025W # |
| 002 | 18.4  | 0.313 | 0.33 | 0.948 | -0.429 | 0.01 | 0.0 | 0.0 | 0.0 | 55.3 | 50.0  | 0.0 | 0.0 | 0.0 | 0.0 | 0.50 | 0.50 | 0.50 | % N050W # |
| 003 | 48.2  | 0.313 | 0.33 | 0.948 | -0.429 | 0.01 | 0.0 | 0.0 | 0.0 | 23.1 | 75.0  | 0.0 | 0.0 | 0.0 | 0.0 | 0.75 | 0.75 | 0.75 | % N075W # |
| 004 | 100.0 | 0.313 | 0.33 | 0.948 | -0.429 | 0.01 | 0.0 | 0.0 | 0.0 | 0.0  | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.00 | 1.00 | 1.00 | % N100W # |

| Ostwald optimal colours (o) of maximum (m) C <sub>AB</sub> for D65, Y <sub>w</sub> =100, Y <sub>m</sub> =520_770, CIELAB data          |                                 |                   |                   |                   |                  |        |         |                 |                                 |                                 |      |  |   | % |
|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------|-------------------|-------------------|------------------|--------|---------|-----------------|---------------------------------|---------------------------------|------|--|---|---|
| i <sub>1</sub> , λ <sub>1</sub>                                                                                                        | i <sub>2</sub> , λ <sub>2</sub> | L* <sub>100</sub> | a* <sub>100</sub> | b* <sub>100</sub> | C* <sub>ab</sub> | a'     | b'      | h <sub>ab</sub> | i <sub>d</sub> , λ <sub>d</sub> | i <sub>c</sub> , λ <sub>c</sub> | Code |  | % |   |
| 0 405                                                                                                                                  | 32 561                          | 80.85             | -67.55            | -32.54            | 74.98            | 0.1805 | -0.1029 | 205.7           | 16 483                          | 37 589                          | Cm   |  | % |   |
| 6 435                                                                                                                                  | 32 562                          | 81.18             | -81.89            | -19.25            | 84.12            | 0.1732 | -0.096  | 193.2           | 17 486                          | 42 610                          |      |  | % |   |
| 10 450                                                                                                                                 | 32 563                          | 81.52             | -109.06           | 11.43             | 109.66           | 0.1595 | -0.0803 | 174.0           | 19 496                          | -1 496c                         |      |  | % |   |
| 12 460                                                                                                                                 | 33 565                          | 82.01             | -120.74           | 33.26             | 125.23           | 0.1538 | -0.0692 | 164.5           | 21 505                          | -1 505c                         |      |  | % |   |
| 12 465                                                                                                                                 | 33 567                          | 82.73             | -118.76           | 34.5              | 123.67           | 0.1552 | -0.0687 | 163.8           | 21 506                          | -1 506c                         |      |  | % |   |
| 14 470                                                                                                                                 | 33 569                          | 83.3              | -123.47           | 57.53             | 136.22           | 0.1532 | -0.0572 | 155.0           | 24 520                          | -1 520c                         |      |  | % |   |
| 15 475                                                                                                                                 | 34 573                          | 84.63             | -118.73           | 70.39             | 138.03           | 0.1564 | -0.0512 | 149.3           | 25 528                          | -1 528c                         | Gm   |  | % |   |
| 16 480                                                                                                                                 | 36 580                          | 86.98             | -107.21           | 84.2              | 136.33           | 0.1633 | -0.0452 | 141.8           | 27 537                          | -1 537c                         |      |  | % |   |
| 17 485                                                                                                                                 | 39 595                          | 91.12             | -80.53            | 100.07            | 128.45           | 0.1778 | -0.0394 | 128.8           | 29 548                          | -1 548c                         |      |  | % |   |
| 18 490                                                                                                                                 | -1 490c                         | 97.55             | -23.15            | 119.05            | 121.28           | 0.2052 | -0.0337 | 101.0           | 33 565                          | 11 459                          | max  |  | % |   |
| 19 495                                                                                                                                 | -1 495c                         | 96.94             | -20.63            | 125.42            | 127.1            | 0.2062 | -0.0306 | 99.3            | 33 566                          | 12 462                          |      |  | % |   |
| 20 500                                                                                                                                 | -1 500c                         | 96.17             | -17.33            | 131.15            | 132.29           | 0.2076 | -0.0277 | 97.5            | 33 567                          | 12 464                          |      |  | % |   |
| 22 510                                                                                                                                 | -1 510c                         | 94.0              | -8.24             | 140.17            | 140.41           | 0.2116 | -0.0224 | 93.3            | 33 569                          | 13 469                          |      |  | % |   |
| 23 520                                                                                                                                 | -1 519c                         | 92.57             | -2.53             | 142.99            | 143.01           | 0.2142 | -0.0202 | 91.0            | 34 570                          | 14 471                          | Ym   |  | % |   |
| 25 530                                                                                                                                 | -1 529c                         | 88.94             | 10.79             | 144.39            | 144.79           | 0.2205 | -0.0165 | 85.7            | 34 573                          | 15 475                          |      |  | % |   |
| 27 540                                                                                                                                 | -1 539c                         | 84.43             | 25.54             | 141.4             | 143.69           | 0.2281 | -0.0134 | 79.7            | 35 577                          | 15 478                          |      |  | % |   |
| 28 545                                                                                                                                 | -1 544c                         | 81.91             | 33.05             | 138.34            | 142.24           | 0.2322 | -0.0121 | 76.5            | 35 579                          | 15 479                          |      |  | % |   |
| 29 550                                                                                                                                 | -1 549c                         | 79.2              | 40.58             | 134.51            | 140.5            | 0.2367 | -0.0111 | 73.2            | 36 582                          | 16 480                          |      |  | % |   |
| 30 555                                                                                                                                 | -1 554c                         | 76.32             | 47.96             | 130.1             | 138.66           | 0.2413 | -0.0103 | 69.7            | 36 584                          | 16 481                          |      |  | % |   |
| 32 560                                                                                                                                 | -1 560c                         | 70.18             | 61.63             | 120.13            | 135.02           | 0.2511 | -0.0093 | 62.8            | 37 589                          | 16 483                          |      |  | % |   |
| 380                                                                                                                                    | 770                             | 100.0             | 0.0               | 0.0               | 0.0              | 0.2154 | -0.0861 | 0.0             |                                 |                                 |      |  | % |   |
| Ostwald optimal colours (o) of maximum (m) C <sub>AB</sub> for D65, Y <sub>w</sub> =100, Y <sub>m</sub> =770_520, CIELAB complementary |                                 |                   |                   |                   |                  |        |         |                 |                                 |                                 |      |  |   | % |
| i <sub>1</sub> , λ <sub>1</sub>                                                                                                        | i <sub>2</sub> , λ <sub>2</sub> | L* <sub>100</sub> | a* <sub>100</sub> | b* <sub>100</sub> | C* <sub>ab</sub> | a'     | b'      | h <sub>ab</sub> | i <sub>d</sub> , λ <sub>d</sub> | i <sub>c</sub> , λ <sub>c</sub> | Code |  | % |   |
| 32 561                                                                                                                                 | 0 405                           | 70.73             | 60.88             | 110.08            | 125.79           | 0.2505 | -0.022  | 61.0            | 37 589                          | 16 483                          | Rm   |  | % |   |
| 32 562                                                                                                                                 | 6 435                           | 70.32             | 70.58             | 34.83             | 78.71            | 0.2562 | -0.0659 | 26.2            | 42 610                          | 17 486                          |      |  | % |   |
| 32 563                                                                                                                                 | 10 450                          | 69.88             | 85.85             | -12.65            | 86.78            | 0.2653 | -0.0935 | 351.6           | -1 496c                         | 19 496                          |      |  | % |   |
| 33 565                                                                                                                                 | 12 460                          | 69.24             | 92.89             | -29.55            | 97.48            | 0.2698 | -0.1035 | 342.3           | -1 505c                         | 21 505                          |      |  | % |   |
| 33 567                                                                                                                                 | 12 465                          | 68.27             | 94.84             | -31.22            | 99.85            | 0.2716 | -0.1046 | 341.7           | -1 506c                         | 21 506                          |      |  | % |   |
| 33 569                                                                                                                                 | 14 470                          | 67.49             | 99.24             | -42.98            | 108.15           | 0.2748 | -0.1119 | 336.5           | -1 520c                         | 24 520                          |      |  | % |   |
| 34 573                                                                                                                                 | 15 475                          | 65.52             | 102.87            | -49.85            | 114.31           | 0.2784 | -0.1167 | 334.1           | -1 528c                         | 25 528                          | Mm   |  | % |   |
| 36 580                                                                                                                                 | 16 480                          | 61.69             | 107.96            | -59.02            | 123.05           | 0.2848 | -0.1241 | 331.3           | -1 537c                         | 27 537                          |      |  | % |   |
| 39 595                                                                                                                                 | 17 485                          | 53.22             | 112.99            | -75.47            | 135.88           | 0.297  | -0.1406 | 326.2           | -1 548c                         | 29 548                          |      |  | % |   |
| -1 490c                                                                                                                                | 18 490                          | 29.91             | 89.01             | -117.0            | 147.01           | 0.3124 | -0.2136 | 307.2           | 11 459                          | 33 565                          | min  |  | % |   |
| -1 495c                                                                                                                                | 19 495                          | 33.36             | 74.42             | -112.09           | 134.55           | 0.2908 | -0.1997 | 303.5           | 12 462                          | 33 566                          |      |  | % |   |
| -1 500c                                                                                                                                | 20 500                          | 37.09             | 58.44             | -106.44           | 121.43           | 0.2704 | -0.1864 | 298.7           | 12 464                          | 33 567                          |      |  | % |   |
| -1 510c                                                                                                                                | 22 510                          | 45.26             | 23.9              | -93.37            | 96.38            | 0.2349 | -0.1623 | 284.3           | 13 469                          | 33 569                          |      |  | % |   |
| -1 519c                                                                                                                                | 23 520                          | 49.52             | 6.76              | -86.32            | 86.58            | 0.2205 | -0.152  | 274.4           | 14 471                          | 34 570                          | Bm   |  | % |   |
| -1 529c                                                                                                                                | 25 530                          | 58.0              | -23.98            | -72.06            | 75.95            | 0.1992 | -0.1348 | 251.5           | 15 475                          | 34 573                          |      |  | % |   |
| -1 539c                                                                                                                                | 27 540                          | 65.83             | -46.7             | -58.75            | 75.05            | 0.1868 | -0.122  | 231.5           | 15 478                          | 35 577                          |      |  | % |   |
| -1 544c                                                                                                                                | 28 545                          | 69.38             | -54.68            | -52.68            | 75.93            | 0.1833 | -0.117  | 223.9           | 15 479                          | 35 579                          |      |  | % |   |
| -1 549c                                                                                                                                | 29 550                          | 72.72             | -60.59            | -46.95            | 76.65            | 0.1812 | -0.1126 | 217.7           | 16 480                          | 36 582                          |      |  | % |   |
| -1 554c                                                                                                                                | 30 555                          | 75.82             | -64.5             | -41.62            | 76.77            | 0.1803 | -0.1088 | 212.8           | 16 481                          | 36 584                          |      |  | % |   |
| -1 560c                                                                                                                                | 32 560                          | 81.29             | -66.96            | -32.22            | 74.32            | 0.181  | -0.1027 | 205.6           | 16 483                          | 37 589                          |      |  | % |   |
| 380                                                                                                                                    | 770                             | 100.0             | 0.0               | 0.0               | 0.0              | 0.2154 | -0.0861 | 0.0             |                                 |                                 |      |  | % |   |

| Ostwald optimal colours (o) of maximum (m) C <sub>AB</sub> for D65, Y <sub>w</sub> =100, Y <sub>m</sub> =520_770, CIELAB data |                                 |                   |                   |                   |                  |        |        |                 |                                 |                                 |        |         |     |  | % |   |
|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------|-------------------|-------------------|------------------|--------|--------|-----------------|---------------------------------|---------------------------------|--------|---------|-----|--|---|---|
| i <sub>1</sub> , λ <sub>1</sub>                                                                                               | i <sub>2</sub> , λ <sub>2</sub> | L* <sub>100</sub> | a* <sub>100</sub> | b* <sub>100</sub> | C* <sub>ab</sub> | a'     | b'     | h <sub>ab</sub> | i <sub>d</sub> , λ <sub>d</sub> | i <sub>c</sub> , λ <sub>c</sub> | Code   |         |     |  | % |   |
| 0                                                                                                                             | 405                             | 32                | 561               | 80.85             | −67.55           | −32.54 | 74.98  | 0.1805          | −0.1029                         | 205.7                           | 16 483 | 37 589  | Cm  |  |   | % |
| 6                                                                                                                             | 435                             | 32                | 562               | 81.18             | −81.89           | −19.25 | 84.12  | 0.1732          | −0.096                          | 193.2                           | 17 486 | 42 610  |     |  |   | % |
| 10                                                                                                                            | 450                             | 32                | 563               | 81.52             | −109.06          | 11.43  | 109.66 | 0.1595          | −0.0803                         | 174.0                           | 19 496 | −1 496c |     |  |   | % |
| 12                                                                                                                            | 460                             | 33                | 565               | 82.01             | −120.74          | 33.26  | 125.23 | 0.1538          | −0.0692                         | 164.5                           | 21 505 | −1 505c |     |  |   | % |
| 12                                                                                                                            | 465                             | 33                | 567               | 82.73             | −118.76          | 34.5   | 123.67 | 0.1552          | −0.0687                         | 163.8                           | 21 506 | −1 506c |     |  |   | % |
| 14                                                                                                                            | 470                             | 33                | 569               | 83.3              | −123.47          | 57.53  | 136.22 | 0.1532          | −0.0572                         | 155.0                           | 24 520 | −1 520c |     |  |   | % |
| 15                                                                                                                            | 475                             | 34                | 573               | 84.63             | −118.73          | 70.39  | 138.03 | 0.1564          | −0.0512                         | 149.3                           | 25 528 | −1 528c | Gm  |  |   | % |
| 16                                                                                                                            | 480                             | 36                | 580               | 86.98             | −107.21          | 84.2   | 136.33 | 0.1633          | −0.0452                         | 141.8                           | 27 537 | −1 537c |     |  |   | % |
| 17                                                                                                                            | 485                             | 39                | 595               | 91.12             | −80.53           | 100.07 | 128.45 | 0.1778          | −0.0394                         | 128.8                           | 29 548 | −1 548c |     |  |   | % |
| 18                                                                                                                            | 490                             | −1                | 490c              | 97.55             | −23.15           | 119.05 | 121.28 | 0.2052          | −0.0337                         | 101.0                           | 33 565 | 11 459  | max |  |   | % |
| 19                                                                                                                            | 495                             | −1                | 495c              | 96.94             | −20.63           | 125.42 | 127.1  | 0.2062          | −0.0306                         | 99.3                            | 33 566 | 12 462  |     |  |   | % |
| 20                                                                                                                            | 500                             | −1                | 500c              | 96.17             | −17.33           | 131.15 | 132.29 | 0.2076          | −0.0277                         | 97.5                            | 33 567 | 12 464  |     |  |   | % |
| 22                                                                                                                            | 510                             | −1                | 510c              | 94.0              | −8.24            | 140.17 | 140.41 | 0.2116          | −0.0224                         | 93.3                            | 33 569 | 13 469  |     |  |   | % |
| 23                                                                                                                            | 520                             | −1                | 519c              | 92.57             | −2.53            | 142.99 | 143.01 | 0.2142          | −0.0202                         | 91.0                            | 34 570 | 14 471  | Ym  |  |   | % |
| 25                                                                                                                            | 530                             | −1                | 529c              | 88.94             | 10.79            | 144.39 | 144.79 | 0.2205          | −0.0165                         | 85.7                            | 34 573 | 15 475  |     |  |   | % |
| 27                                                                                                                            | 540                             | −1                | 539c              | 84.43             | 25.54            | 141.4  | 143.69 | 0.2281          | −0.0134                         | 79.7                            | 35 577 | 15 478  |     |  |   | % |
| 28                                                                                                                            | 545                             | −1                | 544c              | 81.91             | 33.05            | 138.34 | 142.24 | 0.2322          | −0.0121                         | 76.5                            | 35 579 | 15 479  |     |  |   | % |
| 29                                                                                                                            | 550                             | −1                | 549c              | 79.2              | 40.58            | 134.51 | 140.5  | 0.2367          | −0.0111                         | 73.2                            | 36 582 | 16 480  |     |  |   | % |
| 30                                                                                                                            | 555                             | −1                | 554c              | 76.32             | 47.96            | 130.1  | 138.66 | 0.2413          | −0.0103                         | 69.7                            | 36 584 | 16 481  |     |  |   | % |
| 32                                                                                                                            | 560                             | −1                | 560c              | 70.18             | 61.63            | 120.13 | 135.02 | 0.2511          | −0.0093                         | 62.8                            | 37 589 | 16 483  |     |  |   | % |
|                                                                                                                               | 380                             | 770               | 100.0             | 0.0               | 0.0              | 0.0    | 0.0    | 0.2154          | −0.0861                         | 0.0                             |        |         |     |  |   | % |

|                                                                                                                                                                                                                                  |                 |                 |                 |                 |                 |                              |                 |                 |                              |                              |                             |                             |                             |                                          |                              |                                  |                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------------------|-----------------|-----------------|------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|------------------------------------------|------------------------------|----------------------------------|---------------------------------|
| <b><i>rgb</i><sub>e,ab</sub> and CIE data of a elementary hue circle according to CIE R1-47 for <i>Ostwald</i> colours for CIE illuminant D65</b>                                                                                |                 |                 |                 |                 |                 |                              |                 |                 |                              |                              |                             |                             |                             |                                          |                              |                                  |                                 |
| <b><i>Xy</i>, <i>abc</i><sub>AB</sub>, <i>ABC</i><sub>AB</sub>, <i>LabC</i><sub>ab</sub>, <i>h</i><sub>ab</sub> data for relative spacing of elementary hue <i>h</i><sub>ab</sub> of <i>CIELAB</i> for CIE 2 degree observer</b> |                 |                 |                 |                 |                 |                              |                 |                 |                              |                              |                             |                             |                             |                                          |                              |                                  |                                 |
| <b>Elementary hue circle with 4 intended elementary hue angles: <i>h</i><sub>ab</sub> = 25.6, 92.4, 162.1, 271.5 of <i>CIELAB</i>, and 16 intended hue angles:</b>                                                               |                 |                 |                 |                 |                 |                              |                 |                 |                              |                              |                             |                             |                             |                                          |                              |                                  |                                 |
| <b>25.6 42.3 59.0 75.7 92.4 109.8 127.2 144.7 162.1 189.4 216.8 244.1 271.5 300.0 328.5 357.1</b>                                                                                                                                |                 |                 |                 |                 |                 |                              |                 |                 |                              |                              |                             |                             |                             |                                          |                              |                                  |                                 |
| <b>CIELAB data of CIE test colours 9 (R): 40.0 58.9 28.3, 10 (Y): 81.3 −3.0 71.8, 11 (G): 52.2 −42.3 13.6, 12 (B): 30.5 1.2 −46.3</b>                                                                                            |                 |                 |                 |                 |                 |                              |                 |                 |                              |                              |                             |                             |                             |                                          |                              |                                  |                                 |
| <b><i>no.</i><sub>ab</sub></b>                                                                                                                                                                                                   | <b><i>Y</i></b> | <b><i>x</i></b> | <b><i>y</i></b> | <b><i>a</i></b> | <b><i>b</i></b> | <b><i>c</i><sub>AB</sub></b> | <b><i>A</i></b> | <b><i>B</i></b> | <b><i>C</i><sub>AB</sub></b> | <b><i>h</i><sub>AB</sub></b> | <b><i>L</i><sup>*</sup></b> | <b><i>a</i><sup>*</sup></b> | <b><i>b</i><sup>*</sup></b> | <b><i>C</i><sup>*</sup><sub>ab</sub></b> | <b><i>h</i><sub>ab</sub></b> | <b><i>rgb</i><sub>e,ab</sub></b> | <b><i>Code</i><sub>ab</sub></b> |
| 000                                                                                                                                                                                                                              | 41.2            | 0.516           | 0.321           | 1.603           | −0.201          | 0.693                        | 26.9            | 9.6             | 28.5                         | 19.7                         | 70.3                        | 70.8                        | 33.7                        | 78.4                                     | 25.4                         | 1.00 0.00 0.00                   | % R00Y #                        |
| 001                                                                                                                                                                                                                              | 41.5            | 0.571           | 0.371           | 1.539           | −0.06           | 0.698                        | 24.5            | 15.5            | 29.0                         | 32.4                         | 70.5                        | 65.1                        | 71.7                        | 96.9                                     | 47.7                         | 1.00 0.25 0.00                   | % R25Y #                        |
| 002                                                                                                                                                                                                                              | 41.7            | 0.593           | 0.396           | 1.497           | −0.01           | 0.693                        | 22.8            | 17.7            | 28.9                         | 37.8                         | 70.7                        | 61.2                        | 106.6                       | 122.9                                    | 60.1                         | 1.00 0.50 0.00                   | % R50Y #                        |
| 003                                                                                                                                                                                                                              | 58.9            | 0.546           | 0.452           | 1.208           | −0.001          | 0.505                        | 15.2            | 25.5            | 29.7                         | 59.2                         | 81.2                        | 34.9                        | 137.4                       | 141.8                                    | 75.7                         | 1.00 0.75 0.00                   | % R75Y #                        |
| 004                                                                                                                                                                                                                              | 84.1            | 0.473           | 0.517           | 0.913           | −0.006          | 0.43                         | −3.0            | 36.0            | 36.2                         | 94.8                         | 93.5                        | −6.1                        | 141.7                       | 141.9                                    | 92.4                         | 1.00 1.00 0.00                   | % Y00G #                        |
| 005                                                                                                                                                                                                                              | 89.6            | 0.406           | 0.552           | 0.735           | −0.03           | 0.459                        | −19.2           | 36.3            | 41.1                         | 117.9                        | 95.8                        | −39.5                       | 113.6                       | 120.3                                    | 109.1                        | 0.75 1.00 0.00                   | % Y25G #                        |
| 006                                                                                                                                                                                                                              | 79.6            | 0.332           | 0.605           | 0.549           | −0.04           | 0.562                        | −31.9           | 31.4            | 44.7                         | 135.4                        | 91.5                        | −77.3                       | 101.1                       | 127.3                                    | 127.3                        | 0.50 1.00 0.00                   | % Y50G #                        |
| 007                                                                                                                                                                                                                              | 67.8            | 0.247           | 0.635           | 0.389           | −0.073          | 0.667                        | −38.0           | 24.5            | 45.2                         | 147.1                        | 85.9                        | −112.9                      | 78.7                        | 137.6                                    | 145.1                        | 0.25 1.00 0.00                   | % Y75G #                        |
| 008                                                                                                                                                                                                                              | 61.8            | 0.189           | 0.536           | 0.353           | −0.203          | 0.64                         | −36.9           | 14.3            | 39.6                         | 158.7                        | 82.8                        | −119.6                      | 38.1                        | 125.5                                    | 162.3                        | 0.00 1.00 0.00                   | % G00B #                        |
| 009                                                                                                                                                                                                                              | 58.9            | 0.165           | 0.35            | 0.472           | −0.552          | 0.491                        | −28.1           | −6.8            | 28.9                         | 193.7                        | 81.2                        | −87.0                       | −13.8                       | 88.1                                     | 189.0                        | 0.00 1.00 0.50                   | % G25B #                        |
| 010                                                                                                                                                                                                                              | 45.5            | 0.142           | 0.253           | 0.563           | −0.955          | 0.647                        | −17.6           | −23.6           | 29.5                         | 233.3                        | 73.2                        | −61.4                       | −46.0                       | 76.8                                     | 216.8                        | 0.00 1.00 1.00                   | % G50B #                        |
| 011                                                                                                                                                                                                                              | 29.4            | 0.128           | 0.186           | 0.69            | −1.474          | 1.071                        | −7.6            | −30.5           | 31.5                         | 255.9                        | 61.1                        | −33.6                       | −66.7                       | 74.7                                     | 243.2                        | 0.00 0.50 1.00                   | % G75B #                        |
| 012                                                                                                                                                                                                                              | 18.8            | 0.127           | 0.129           | 0.981           | −2.291          | 1.856                        | 0.5             | −34.9           | 34.9                         | 278.9                        | 50.4                        | 3.1                         | −84.7                       | 84.7                                     | 272.1                        | 0.00 0.00 1.00                   | % B00R #                        |
| 013                                                                                                                                                                                                                              | 8.9             | 0.136           | 0.067           | 2.02            | −4.722          | 4.418                        | 9.5             | −38.2           | 39.4                         | 284.0                        | 35.8                        | 63.8                        | −108.4                      | 125.8                                    | 300.5                        | 0.50 0.00 1.00                   | % B25R #                        |
| 014                                                                                                                                                                                                                              | 26.3            | 0.329           | 0.14            | 2.344           | −1.51           | 1.76                         | 36.7            | −28.3           | 46.3                         | 322.3                        | 58.3                        | 112.5                       | −65.8                       | 130.3                                    | 329.6                        | 1.00 0.00 1.00                   | % B50R #                        |
| 015                                                                                                                                                                                                                              | 40.6            | 0.437           | 0.249           | 1.75            | −0.5            | 0.802                        | 32.5            | −2.6            | 32.6                         | 355.3                        | 69.9                        | 83.6                        | −7.0                        | 83.9                                     | 355.1                        | 1.00 0.00 0.50                   | % B75R #                        |
| 016                                                                                                                                                                                                                              | 41.2            | 0.516           | 0.321           | 1.603           | −0.201          | 0.693                        | 26.9            | 9.6             | 28.5                         | 19.7                         | 70.3                        | 70.8                        | 33.7                        | 78.4                                     | 25.4                         | 1.00 0.00 0.00                   | % R00Y #                        |
| <b>CIEXYZ data of CIE test colours 9 (R): 20.6 11.2 4.3, 10 (Y): 54.8 59.0 12.0, 11 (G): 12.1 20.3 15.3, 12 (B): 6.2 6.4 27.6</b>                                                                                                |                 |                 |                 |                 |                 |                              |                 |                 |                              |                              |                             |                             |                             |                                          |                              |                                  |                                 |
| <b>5 step equidistant grey scale with intended lightness: <i>L</i><sup>*</sup> = 0.0, 25.0, 50.0, 75.0, 100.0</b>                                                                                                                |                 |                 |                 |                 |                 |                              |                 |                 |                              |                              |                             |                             |                             |                                          |                              |                                  |                                 |
| 000                                                                                                                                                                                                                              | 0.0             | 0.0             | 0.0             | 0.0             | 0.0             | 1.045                        | 0.0             | 0.0             | 0.0                          | 0.0                          | 0.0                         | 0.0                         | 0.0                         | 0.0                                      | 0.0                          | 0.00 0.00 0.00                   | % N000W #                       |
| 001                                                                                                                                                                                                                              | 4.4             | 0.312           | 0.329           | 0.95            | −0.435          | 0.01                         | 0.0             | 0.0             | 0.0                          | 77.1                         | 25.0                        | 0.0                         | 0.0                         | 0.0                                      | 0.0                          | 0.25 0.25 0.25                   | % N025W #                       |
| 002                                                                                                                                                                                                                              | 18.4            | 0.312           | 0.329           | 0.95            | −0.435          | 0.01                         | 0.0             | 0.0             | 0.0                          | 57.4                         | 50.0                        | 0.0                         | 0.0                         | 0.0                                      | 0.0                          | 0.50 0.50 0.50                   | % N050W #                       |
| 003                                                                                                                                                                                                                              | 48.2            | 0.312           | 0.329           | 0.95            | −0.435          | 0.01                         | 0.0             | 0.0             | 0.0                          | 22.9                         | 75.0                        | 0.0                         | 0.0                         | 0.0                                      | 0.0                          | 0.75 0.75 0.75                   | % N075W #                       |
| 004                                                                                                                                                                                                                              | 100.0           | 0.312           | 0.329           | 0.95            | −0.435          | 0.01                         | 0.0             | 0.0             | 0.0                          | 100.0                        | 0.0                         | 0.0                         | 0.0                         | 0.0                                      | 0.0                          | 1.00 1.00 1.00                   | % N100W #                       |

| Ostwald optimal colours (o) of maximum (m) C <sub>AB</sub> for D65, Y <sub>w,10</sub> =100, Y <sub>m</sub> =520_770, CIELAB data          |                                 |                   |                   |                   |                  |        |         |                 |                                 |                                 |      |  |   | % |
|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------|-------------------|-------------------|------------------|--------|---------|-----------------|---------------------------------|---------------------------------|------|--|---|---|
| i <sub>1</sub> , λ <sub>1</sub>                                                                                                           | i <sub>2</sub> , λ <sub>2</sub> | L* <sub>100</sub> | a* <sub>100</sub> | b* <sub>100</sub> | C* <sub>ab</sub> | a'     | b'      | h <sub>ab</sub> | i <sub>d</sub> , λ <sub>d</sub> | i <sub>c</sub> , λ <sub>c</sub> | Code |  | % |   |
| 0 405                                                                                                                                     | 31 556                          | 79.94             | −66.31            | −34.08            | 74.56            | 0.1807 | −0.1034 | 207.2           | 15 476                          | 37 585                          | Cm   |  | % |   |
| 6 435                                                                                                                                     | 31 557                          | 80.42             | −82.6             | −17.8             | 84.5             | 0.1724 | −0.0949 | 192.1           | 16 480                          | 44 621                          |      |  | % |   |
| 10 450                                                                                                                                    | 31 559                          | 80.48             | −108.29           | 14.97             | 109.32           | 0.1591 | −0.078  | 172.1           | 18 491                          | −1 491c                         |      |  | % |   |
| 11 460                                                                                                                                    | 32 562                          | 81.44             | −111.37           | 27.39             | 114.69           | 0.1581 | −0.0717 | 166.1           | 19 498                          | −1 498c                         |      |  | % |   |
| 12 465                                                                                                                                    | 33 565                          | 82.34             | −112.77           | 40.26             | 119.75           | 0.1579 | −0.0653 | 160.3           | 21 506                          | −1 506c                         |      |  | % |   |
| 14 470                                                                                                                                    | 34 570                          | 83.48             | −109.79           | 65.41             | 127.8            | 0.1601 | −0.053  | 149.2           | 24 522                          | −1 522c                         |      |  | % |   |
| 15 475                                                                                                                                    | 35 579                          | 86.33             | −94.64            | 81.3              | 124.77           | 0.169  | −0.0462 | 139.3           | 26 533                          | −1 533c                         | Gm   |  | % |   |
| 16 480                                                                                                                                    | 41 606                          | 92.55             | −53.33            | 102.14            | 115.22           | 0.1907 | −0.0389 | 117.5           | 30 550                          | −1 550c                         |      |  | % |   |
| 16 485                                                                                                                                    | −1 484c                         | 96.94             | −20.21            | 109.71            | 111.55           | 0.2063 | −0.0374 | 100.4           | 32 560                          | 10 454                          |      |  | % |   |
| 18 490                                                                                                                                    | −1 490c                         | 95.61             | −14.83            | 124.45            | 125.34           | 0.2086 | −0.0302 | 96.7            | 32 562                          | 11 459                          | max  |  | % |   |
| 19 495                                                                                                                                    | −1 495c                         | 94.76             | −11.22            | 130.34            | 130.82           | 0.2101 | −0.0271 | 94.9            | 32 563                          | 12 461                          |      |  | % |   |
| 19 500                                                                                                                                    | −1 499c                         | 94.76             | −11.22            | 130.34            | 130.82           | 0.2101 | −0.0271 | 94.9            | 32 563                          | 12 461                          |      |  | % |   |
| 22 510                                                                                                                                    | −1 510c                         | 91.28             | 2.92              | 142.55            | 142.58           | 0.2166 | −0.0195 | 88.8            | 33 567                          | 13 466                          |      |  | % |   |
| 23 520                                                                                                                                    | −1 519c                         | 89.77             | 8.54              | 144.07            | 144.32           | 0.2192 | −0.0174 | 86.6            | 33 568                          | 13 468                          | Ym   |  | % |   |
| 26 530                                                                                                                                    | −1 530c                         | 84.06             | 27.32             | 142.33            | 144.93           | 0.2288 | −0.0115 | 79.1            | 34 573                          | 14 472                          |      |  | % |   |
| 27 540                                                                                                                                    | −1 539c                         | 81.79             | 33.86             | 139.63            | 143.68           | 0.2325 | −0.0095 | 76.3            | 35 576                          | 14 473                          |      |  | % |   |
| 28 545                                                                                                                                    | −1 544c                         | 79.35             | 40.37             | 136.19            | 142.05           | 0.2363 | −0.0075 | 73.4            | 35 578                          | 14 474                          |      |  | % |   |
| 29 550                                                                                                                                    | −1 549c                         | 76.75             | 46.79             | 132.12            | 140.16           | 0.2404 | −0.0054 | 70.4            | 36 580                          | 15 475                          |      |  | % |   |
| 31 555                                                                                                                                    | −1 555c                         | 71.13             | 58.79             | 122.64            | 136.0            | 0.2489 | 0.0     | 64.3            | 37 586                          | 15 476                          |      |  | % |   |
| 32 560                                                                                                                                    | 10 451                          | 69.5              | 84.42             | −15.9             | 85.9             | 0.2645 | −0.095  | 349.3           | −1 492c                         | 18 492                          |      |  | % |   |
| 380                                                                                                                                       | 770                             | 100.0             | 0.0               | 0.0               | 0.0              | 0.2152 | −0.0857 | 0.0             |                                 |                                 |      |  | % |   |
| Ostwald optimal colours (o) of maximum (m) C <sub>AB</sub> for D65, Y <sub>w,10</sub> =100, Y <sub>m</sub> =770_520, CIELAB complementary |                                 |                   |                   |                   |                  |        |         |                 |                                 |                                 |      |  |   | % |
| i <sub>1</sub> , λ <sub>1</sub>                                                                                                           | i <sub>2</sub> , λ <sub>2</sub> | L* <sub>100</sub> | a* <sub>100</sub> | b* <sub>100</sub> | C* <sub>ab</sub> | a'     | b'      | h <sub>ab</sub> | i <sub>d</sub> , λ <sub>d</sub> | i <sub>c</sub> , λ <sub>c</sub> | Code |  | % |   |
| 31 556                                                                                                                                    | 0 405                           | 71.84             | 57.81             | 111.35            | 125.47           | 0.2481 | −0.0221 | 62.5            | 37 585                          | 15 476                          | Rm   |  | % |   |
| 31 557                                                                                                                                    | 6 435                           | 71.27             | 68.77             | 29.56             | 74.85            | 0.2546 | −0.0689 | 23.2            | 44 621                          | 16 480                          |      |  | % |   |
| 31 559                                                                                                                                    | 10 450                          | 71.19             | 81.9              | −15.15            | 83.29            | 0.2621 | −0.0944 | 349.5           | −1 491c                         | 18 491                          |      |  | % |   |
| 32 562                                                                                                                                    | 11 460                          | 69.98             | 86.63             | −25.22            | 90.23            | 0.2655 | −0.1003 | 343.7           | −1 498c                         | 19 498                          |      |  | % |   |
| 33 565                                                                                                                                    | 12 465                          | 68.81             | 90.56             | −33.85            | 96.68            | 0.2685 | −0.1056 | 339.5           | −1 506c                         | 21 506                          |      |  | % |   |
| 34 570                                                                                                                                    | 14 470                          | 67.22             | 93.6              | −46.01            | 104.3            | 0.2714 | −0.1132 | 333.8           | −1 522c                         | 24 522                          |      |  | % |   |
| 35 579                                                                                                                                    | 15 475                          | 62.81             | 97.27             | −56.68            | 112.58           | 0.2768 | −0.1215 | 329.7           | −1 533c                         | 26 533                          | Mm   |  | % |   |
| 41 606                                                                                                                                    | 16 480                          | 49.57             | 94.8              | −81.7             | 125.15           | 0.2874 | −0.1477 | 319.2           | −1 550c                         | 30 550                          |      |  | % |   |
| −1 484c                                                                                                                                   | 16 485                          | 33.36             | 73.3              | −109.63           | 131.88           | 0.2894 | −0.1962 | 303.7           | 10 454                          | 32 560                          |      |  | % |   |
| −1 490c                                                                                                                                   | 18 490                          | 39.48             | 47.93             | −101.69           | 112.42           | 0.2584 | −0.1769 | 295.2           | 11 459                          | 32 562                          | min  |  | % |   |
| −1 495c                                                                                                                                   | 19 495                          | 42.69             | 34.2              | −96.93            | 102.79           | 0.2443 | −0.1679 | 289.4           | 12 461                          | 32 563                          |      |  | % |   |
| −1 499c                                                                                                                                   | 19 500                          | 42.69             | 34.2              | −96.93            | 102.79           | 0.2443 | −0.1679 | 289.4           | 12 461                          | 32 563                          |      |  | % |   |
| −1 510c                                                                                                                                   | 22 510                          | 52.84             | −7.33             | −80.67            | 81.0             | 0.2099 | −0.144  | 264.8           | 13 466                          | 33 567                          |      |  | % |   |
| −1 519c                                                                                                                                   | 23 520                          | 56.28             | −19.89            | −74.95            | 77.55            | 0.2014 | −0.1373 | 255.1           | 13 468                          | 33 568                          | Bm   |  | % |   |
| −1 530c                                                                                                                                   | 26 530                          | 66.39             | −49.47            | −57.84            | 76.11            | 0.1852 | −0.1206 | 229.4           | 14 472                          | 34 573                          |      |  | % |   |
| −1 539c                                                                                                                                   | 27 540                          | 69.54             | −55.96            | −52.46            | 76.71            | 0.1825 | −0.1162 | 223.1           | 14 473                          | 35 576                          |      |  | % |   |
| −1 544c                                                                                                                                   | 28 545                          | 72.53             | −60.74            | −47.32            | 77.0             | 0.1809 | −0.1123 | 217.9           | 14 474                          | 35 578                          |      |  | % |   |
| −1 549c                                                                                                                                   | 29 550                          | 75.38             | −63.87            | −42.44            | 76.68            | 0.1803 | −0.1088 | 213.6           | 15 475                          | 36 580                          |      |  | % |   |
| −1 555c                                                                                                                                   | 31 555                          | 80.53             | −65.58            | −33.56            | 73.67            | 0.1813 | −0.103  | 207.1           | 15 476                          | 37 586                          |      |  | % |   |
| 10 451                                                                                                                                    | 32 560                          | 81.82             | −103.91           | 14.76             | 104.95           | 0.1621 | −0.0782 | 171.9           | 18 492                          | −1 492c                         |      |  | % |   |
| 380                                                                                                                                       | 770                             | 100.0             | 0.0               | 0.0               | 0.0              | 0.2152 | −0.0857 | 0.0             |                                 |                                 |      |  | % |   |

| Ostwald optimal colours (o) of maximum (m) C <sub>AB</sub> for D65, Y <sub>w,10</sub> =100, Y <sub>m</sub> =520_770, CIELAB data |                                 |                   |                   |                   |                  |        |        |                 |                                 |                                 |      |      |    |      | %   |   |
|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------|-------------------|-------------------|------------------|--------|--------|-----------------|---------------------------------|---------------------------------|------|------|----|------|-----|---|
| i <sub>1</sub> , λ <sub>1</sub>                                                                                                  | i <sub>2</sub> , λ <sub>2</sub> | L* <sub>100</sub> | a* <sub>100</sub> | b* <sub>100</sub> | C* <sub>ab</sub> | a'     | b'     | h <sub>ab</sub> | i <sub>d</sub> , λ <sub>d</sub> | i <sub>c</sub> , λ <sub>c</sub> | Code |      |    |      | %   |   |
| 0                                                                                                                                | 405                             | 31                | 556               | 79.94             | −66.31           | −34.08 | 74.56  | 0.1807          | −0.1034                         | 207.2                           | 15   | 476  | 37 | 585  | Cm  | % |
| 6                                                                                                                                | 435                             | 31                | 557               | 80.42             | −82.6            | −17.8  | 84.5   | 0.1724          | −0.0949                         | 192.1                           | 16   | 480  | 44 | 621  |     | % |
| 10                                                                                                                               | 450                             | 31                | 559               | 80.48             | −108.29          | 14.97  | 109.32 | 0.1591          | −0.078                          | 172.1                           | 18   | 491  | −1 | 491c |     | % |
| 11                                                                                                                               | 460                             | 32                | 562               | 81.44             | −111.37          | 27.39  | 114.69 | 0.1581          | −0.0717                         | 166.1                           | 19   | 498  | −1 | 498c |     | % |
| 12                                                                                                                               | 465                             | 33                | 565               | 82.34             | −112.77          | 40.26  | 119.75 | 0.1579          | −0.0653                         | 160.3                           | 21   | 506  | −1 | 506c |     | % |
| 14                                                                                                                               | 470                             | 34                | 570               | 83.48             | −109.79          | 65.41  | 127.8  | 0.1601          | −0.053                          | 149.2                           | 24   | 522  | −1 | 522c |     | % |
| 15                                                                                                                               | 475                             | 35                | 579               | 86.33             | −94.64           | 81.3   | 124.77 | 0.169           | −0.0462                         | 139.3                           | 26   | 533  | −1 | 533c | Gm  | % |
| 16                                                                                                                               | 480                             | 41                | 606               | 92.55             | −53.33           | 102.14 | 115.22 | 0.1907          | −0.0389                         | 117.5                           | 30   | 550  | −1 | 550c |     | % |
| 16                                                                                                                               | 485                             | −1                | 484c              | 96.94             | −20.21           | 109.71 | 111.55 | 0.2063          | −0.0374                         | 100.4                           | 32   | 560  | 10 | 454  |     | % |
| 18                                                                                                                               | 490                             | −1                | 490c              | 95.61             | −14.83           | 124.45 | 125.34 | 0.2086          | −0.0302                         | 96.7                            | 32   | 562  | 11 | 459  | max | % |
| 19                                                                                                                               | 495                             | −1                | 495c              | 94.76             | −11.22           | 130.34 | 130.82 | 0.2101          | −0.0271                         | 94.9                            | 32   | 563  | 12 | 461  |     | % |
| 19                                                                                                                               | 500                             | −1                | 499c              | 94.76             | −11.22           | 130.34 | 130.82 | 0.2101          | −0.0271                         | 94.9                            | 32   | 563  | 12 | 461  |     | % |
| 22                                                                                                                               | 510                             | −1                | 510c              | 91.28             | 2.92             | 142.55 | 142.58 | 0.2166          | −0.0195                         | 88.8                            | 33   | 567  | 13 | 466  |     | % |
| 23                                                                                                                               | 520                             | −1                | 519c              | 89.77             | 8.54             | 144.07 | 144.32 | 0.2192          | −0.0174                         | 86.6                            | 33   | 568  | 13 | 468  | Ym  | % |
| 26                                                                                                                               | 530                             | −1                | 530c              | 84.06             | 27.32            | 142.33 | 144.93 | 0.2288          | −0.0115                         | 79.1                            | 34   | 573  | 14 | 472  |     | % |
| 27                                                                                                                               | 540                             | −1                | 539c              | 81.79             | 33.86            | 139.63 | 143.68 | 0.2325          | −0.0095                         | 76.3                            | 35   | 576  | 14 | 473  |     | % |
| 28                                                                                                                               | 545                             | −1                | 544c              | 79.35             | 40.37            | 136.19 | 142.05 | 0.2363          | −0.0075                         | 73.4                            | 35   | 578  | 14 | 474  |     | % |
| 29                                                                                                                               | 550                             | −1                | 549c              | 76.75             | 46.79            | 132.12 | 140.16 | 0.2404          | −0.0054                         | 70.4                            | 36   | 580  | 15 | 475  |     | % |
| 31                                                                                                                               | 555                             | −1                | 555c              | 71.13             | 58.79            | 122.64 | 136.0  | 0.2489          | 0.0                             | 64.3                            | 37   | 586  | 15 | 476  |     | % |
| 32                                                                                                                               | 560                             | 10                | 451               | 69.5              | 84.42            | −15.9  | 85.9   | 0.2645          | −0.095                          | 349.3                           | −1   | 492c | 18 | 492  |     | % |
| 380                                                                                                                              | 770                             | 100.0             | 0.0               | 0.0               | 0.0              | 0.0    | 0.2152 | −0.0857         | 0.0                             |                                 |      |      |    |      |     | % |

| rgb* <sub>e,ab</sub> and CIE data of a elementary hue circle according to CIE R1-47 for Ostwald colours for CIE illuminant D65                                                                                                      |       |                  |                 |                 |                 |                 |                    |                 |                 |                    |                    |                  |                  |                  |                     |                    |                         |                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------|-----------------|-----------------|-----------------|-----------------|--------------------|-----------------|-----------------|--------------------|--------------------|------------------|------------------|------------------|---------------------|--------------------|-------------------------|-----------------------|
| X <sub>Yy</sub> , <i>abc</i> <sub>AB</sub> , <i>ABC</i> <sub>AB</sub> , <i>LabC*</i> <sub>ab</sub> , <i>h</i> <sub>ab</sub> data for relative spacing of elementary hue <i>h</i> <sub>ab</sub> of CIELAB for CIE 10 degree observer |       |                  |                 |                 |                 |                 |                    |                 |                 |                    |                    |                  |                  |                  |                     |                    |                         |                       |
| Elementary hue circle with 4 intended elementary hue angles: <i>h</i> <sub>ab</sub> = 25.9, 87.3, 158.8, 252.1 of CIELAB, and 16 intended hue angles:                                                                               |       |                  |                 |                 |                 |                 |                    |                 |                 |                    |                    |                  |                  |                  |                     |                    |                         |                       |
| CIELAB data of CIE test colours 9 (R): 39.2 54.5 26.4, 10 (Y): 79.5 3.2 71.0, 11 (G): 52.3 −39.6 15.3, 12 (B): 33.6 −12.8 −39.9                                                                                                     |       |                  |                 |                 |                 |                 |                    |                 |                 |                    |                    |                  |                  |                  |                     |                    |                         |                       |
| no.                                                                                                                                                                                                                                 | ab    | X <sub>900</sub> | x <sub>10</sub> | y <sub>10</sub> | a <sub>10</sub> | b <sub>10</sub> | c <sub>AB,10</sub> | A <sub>10</sub> | B <sub>10</sub> | C <sub>AB,10</sub> | h <sub>AB,10</sub> | L* <sub>10</sub> | a* <sub>10</sub> | b* <sub>10</sub> | C* <sub>ab,10</sub> | h <sub>ab,10</sub> | rgb* <sub>e,ab,10</sub> | Code <sub>ab,10</sub> |
| 000                                                                                                                                                                                                                                 | 40.4  | 0.542            | 0.33            | 1.642           | −0.153          | 0.747           | 28.1               | 11.1            | 30.2            | 21.6               | 69.8               | 74.3             | 42.8             | 85.8             | 29.9                | 1.00 0.00 0.00     | % R00Y #                |                       |
| 001                                                                                                                                                                                                                                 | 41.0  | 0.582            | 0.37            | 1.572           | −0.051          | 0.73            | 25.6               | 15.5            | 29.9            | 31.1               | 70.2               | 68.2             | 75.3             | 101.7            | 47.8                | 1.00 0.25 0.00     | % R25Y #                |                       |
| 002                                                                                                                                                                                                                                 | 41.8  | 0.594            | 0.396           | 1.501           | −0.009          | 0.694           | 23.1               | 17.5            | 29.0            | 37.1               | 70.7               | 61.9             | 107.5            | 124.1            | 60.0                | 1.00 0.50 0.00     | % R50Y #                |                       |
| 003                                                                                                                                                                                                                                 | 53.6  | 0.562            | 0.437           | 1.283           | 0.0             | 0.544           | 18.0               | 23.0            | 29.2            | 51.9               | 78.2               | 43.2             | 134.5            | 141.3            | 72.1                | 1.00 0.75 0.00     | % R75Y #                |                       |
| 004                                                                                                                                                                                                                                 | 77.3  | 0.494            | 0.5             | 0.987           | −0.004          | 0.427           | 3.0                | 32.8            | 33.0            | 84.7               | 90.4               | 6.2              | 144.2            | 144.4            | 87.5                | 1.00 1.00 0.00     | % Y00G #                |                       |
| 005                                                                                                                                                                                                                                 | 90.3  | 0.421            | 0.529           | 0.795           | −0.037          | 0.421           | −13.8              | 35.4            | 38.0            | 111.3              | 96.1               | −27.5            | 107.7            | 111.2            | 104.3               | 0.75 1.00 0.00     | % Y25G #                |                       |
| 006                                                                                                                                                                                                                                 | 78.3  | 0.351            | 0.582           | 0.603           | −0.045          | 0.516           | −27.0              | 30.1            | 40.4            | 131.8              | 90.9               | −64.4            | 97.3             | 116.7            | 123.5               | 0.50 1.00 0.00     | % Y50G #                |                       |
| 007                                                                                                                                                                                                                                 | 42.4  | 0.576            | 0.376           | 1.531           | −0.049          | 0.696           | 24.7               | 16.1            | 29.5            | 33.0               | 71.2               | 65.1             | 77.2             | 101.0            | 49.8                | 0.25 1.00 0.00     | % Y75G #                |                       |
| 008                                                                                                                                                                                                                                 | 42.2  | 0.569            | 0.366           | 1.552           | −0.069          | 0.703           | 25.5               | 15.2            | 29.7            | 30.7               | 71.0               | 67.0             | 68.3             | 95.7             | 45.5                | 0.00 1.00 0.00     | % G00B #                |                       |
| 009                                                                                                                                                                                                                                 | 41.9  | 0.556            | 0.352           | 1.58            | −0.103          | 0.711           | 26.5               | 13.6            | 29.8            | 27.2               | 70.8               | 69.5             | 56.4             | 89.5             | 39.0                | 0.00 1.00 0.50     | % G25B #                |                       |
| 010                                                                                                                                                                                                                                 | 41.6  | 0.539            | 0.335           | 1.609           | −0.148          | 0.718           | 27.5               | 11.6            | 29.8            | 22.9               | 70.6               | 71.9             | 44.4             | 84.5             | 31.6                | 0.00 1.00 1.00     | % G50B #                |                       |
| 011                                                                                                                                                                                                                                 | 41.3  | 0.519            | 0.317           | 1.637           | −0.204          | 0.725           | 28.4               | 9.2             | 29.9            | 18.0               | 70.4               | 74.4             | 32.5             | 81.2             | 23.6                | 0.00 0.50 1.00     | % G75B #                |                       |
| 012                                                                                                                                                                                                                                 | 41.0  | 0.498            | 0.299           | 1.665           | −0.27           | 0.734           | 29.4               | 6.5             | 30.1            | 12.4               | 70.2               | 76.7             | 21.1             | 79.6             | 15.4                | 0.00 0.00 1.00     | % B00R #                |                       |
| 013                                                                                                                                                                                                                                 | 40.6  | 0.466            | 0.274           | 1.703           | −0.378          | 0.756           | 30.6               | 2.0             | 30.7            | 3.8                | 69.9               | 79.8             | 6.1              | 80.0             | 4.3                 | 0.50 0.00 1.00     | % B25R #                |                       |
| 014                                                                                                                                                                                                                                 | 40.3  | 0.438            | 0.252           | 1.736           | −0.49           | 0.79            | 31.7               | −2.4            | 31.8            | 355.5              | 69.6               | 82.5             | −6.7             | 82.7             | 355.3               | 1.00 0.00 1.00     | % B50R #                |                       |
| 015                                                                                                                                                                                                                                 | 40.0  | 0.424            | 0.242           | 1.754           | −0.55           | 0.815           | 32.2               | −4.8            | 32.6            | 351.4              | 69.4               | 83.9             | −12.7            | 84.8             | 351.3               | 1.00 0.00 0.50     | % B75R #                |                       |
| 016                                                                                                                                                                                                                                 | 40.4  | 0.542            | 0.33            | 1.642           | −0.153          | 0.747           | 28.1               | 11.1            | 30.2            | 21.6               | 69.8               | 74.3             | 42.8             | 85.8             | 29.9                | 1.00 0.00 0.00     | % R00Y #                |                       |
| CIEXYZ data of CIE test colours 9 (R): 19.0 10.8 4.3, 10 (Y): 54.3 55.9 11.0, 11 (G): 12.5 20.4 14.4, 12 (B): 6.1 7.8 26.5                                                                                                          |       |                  |                 |                 |                 |                 |                    |                 |                 |                    |                    |                  |                  |                  |                     |                    |                         |                       |
| 5 step equidistant grey scale with intended lightness: L* = 0.0, 25.0, 50.0, 75.0, 100.0                                                                                                                                            |       |                  |                 |                 |                 |                 |                    |                 |                 |                    |                    |                  |                  |                  |                     |                    |                         |                       |
| 000                                                                                                                                                                                                                                 | 0.0   | 0.0              | 0.0             | 0.0             | 0.0             | 1.04            | 0.0                | 0.0             | 0.0             | 0.0                | 0.0                | 0.0              | 0.0              | 0.0              | 0.0                 | 0.00 0.00 0.00     | % N000W #               |                       |
| 001                                                                                                                                                                                                                                 | 4.4   | 0.313            | 0.33            | 0.948           | −0.429          | 0.01            | 0.0                | 0.0             | 0.0             | 77.0               | 25.0               | 0.0              | 0.0              | 0.0              | 0.0                 | 0.25 0.25 0.25     | % N025W #               |                       |
| 002                                                                                                                                                                                                                                 | 18.4  | 0.313            | 0.33            | 0.948           | −0.429          | 0.01            | 0.0                | 0.0             | 0.0             | 55.3               | 50.0               | 0.0              | 0.0              | 0.0              | 0.0                 | 0.50 0.50 0.50     | % N050W #               |                       |
| 003                                                                                                                                                                                                                                 | 48.2  | 0.313            | 0.33            | 0.948           | −0.429          | 0.01            | 0.0                | 0.0             | 0.0             | 23.1               | 75.0               | 0.0              | 0.0              | 0.0              | 0.0                 | 0.75 0.75 0.75     | % N075W #               |                       |
| 004                                                                                                                                                                                                                                 | 100.0 | 0.313            | 0.33            | 0.948           | −0.429          | 0.01            | 0.0                | 0.0             | 0.0             | 0.0                | 100.0              | 0.0              | 0.0              | 0.0              | 0.0                 | 1.00 1.00 1.00     | % N100W #               |                       |