

| basic and mixed colors of standard color printing by DIN 16 539 |                           |        |                                |        |        |
|-----------------------------------------------------------------|---------------------------|--------|--------------------------------|--------|--------|
| basic color or mixed color and name                             | CIE standard chromaticity |        | CIE standard tristimulus value |        |        |
|                                                                 | x                         | y      | X                              | Y      | Z      |
| three subtractive basic colors:                                 |                           |        |                                |        |        |
| C cyanblue                                                      | 0,1553                    | 0,1967 | 16,92                          | 21,44  | 70,62  |
| M magentared                                                    | 0,4675                    | 0,2314 | 33,88                          | 16,77  | 21,82  |
| Y yellow                                                        | 0,4399                    | 0,4925 | 68,13                          | 76,28  | 10,48  |
| three subtractive mixed colors:                                 |                           |        |                                |        |        |
| O orangered                                                     | 0,6152                    | 0,3226 | 30,51                          | 16,00  | 3,08   |
| L leafgreen                                                     | 0,1958                    | 0,5256 | 6,05                           | 16,23  | 8,06   |
| V violetblue                                                    | 0,1807                    | 0,1009 | 4,86                           | 2,72   | 19,33  |
| NLC (white)                                                     | 0,3101                    | 0,3162 | 98,07                          | 100,00 | 118,22 |

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| basic and mixed colors of a test offset color printing process |                           |        |                                |       |       |
|----------------------------------------------------------------|---------------------------|--------|--------------------------------|-------|-------|
| basic color or mixed color and name                            | CIE standard chromaticity |        | CIE standard tristimulus value |       |       |
|                                                                | x                         | y      | X                              | Y     | Z     |
| three subtractive basic colors:                                |                           |        |                                |       |       |
| C cyanblue                                                     | 0,1776                    | 0,2510 | 20,04                          | 28,32 | 64,46 |
| M magentared                                                   | 0,4298                    | 0,2320 | 29,94                          | 16,17 | 23,56 |
| Y yellow                                                       | 0,4512                    | 0,5000 | 62,08                          | 68,74 | 6,75  |
| three subtractive mixed colors:                                |                           |        |                                |       |       |
| O orangered                                                    | 0,6261                    | 0,3368 | 21,57                          | 11,60 | 1,28  |
| L leafgreen                                                    | 0,2416                    | 0,5989 | 5,82                           | 14,43 | 3,84  |
| V violetblue                                                   | 0,1890                    | 0,1326 | 4,39                           | 3,08  | 15,77 |
| D65 (white paper, D65)                                         | 0,3173                    | 0,3337 | 77,74                          | 81,79 | 85,43 |
| N (printing black)                                             | 0,3130                    | 0,3258 | 4,12                           | 4,29  | 4,75  |

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| color valence metrics terms (color values: linear coordinates) |                                                                          |                                    |
|----------------------------------------------------------------|--------------------------------------------------------------------------|------------------------------------|
| color valence metric terms                                     | name and relationship with standard chromaticity values                  | notes:                             |
| luminous value                                                 | $Y = y (X + Y + Z)$                                                      | definition in:<br>CIEXYZ 1931      |
| chromatic value                                                | for linear chromatic value diagram (AT, B)                               |                                    |
| red-green                                                      | $A = [X/Y - X_n/Y_n] Y = [a - a_n] Y$<br>$= [x/y - x_n/y_n] Y$           | definition<br>opponent             |
| yellow-blue                                                    | $B = -0,4 [Z/Y - Z_n/Y_n] Y = [b - b_n] Y$<br>$= -0,4 [z/y - z_n/y_n] Y$ | color system<br>$n=D65$ (surround) |
| radial                                                         | $C = [A^2 + B^2]^{1/2}$                                                  |                                    |
| saturation value                                               | = chromatic value / luminous value                                       | definition                         |
| red-green                                                      | $S_a = A/Y = X/Y - X_n/Y_n$<br>$= x/y - x_n/y_n = a - a_n$               | opponent<br>color system           |
| yellow-blue                                                    | $S_b = B/Y = -0,4 [Z/Y - Z_n/Y_n]$<br>$= -0,4 [z/y - z_n/y_n] = b - b_n$ |                                    |
| radial                                                         | $S_c = C/Y$<br>$= [(a - a_n)^2 + (b - b_n)^2]^{1/2}$                     |                                    |
| chromaticity value                                             | for linear chromaticity diagram (a, b) definition                        |                                    |
| red-green                                                      | $a = X/Y = x/y$                                                          | opponent                           |
| yellow-blue                                                    | $b = -0,4 [Z/Y] = -0,4 [z/y]$                                            | color system                       |
| radial                                                         | $c = [(a - a_n)^2 + (b - b_n)^2]^{1/2}$                                  |                                    |

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