

**Colourimetric scaling of achromatic colours between peak white and black.
Relations between tristimulus value Y , luminance L , and lightness L^* of ISO-standards**

| Colour (light or paper) | tristimulus values | IECsRGB _W lightness | relative luminance | | CIELAB _W lightness | TUBLOG _U lightness |
|-----------------------------------|---------------------------|--|--------------------|------------------|--|---|
| Contrast W:N (25:1=90:3,6) | Y ($5^{0,5}=2,24$) | $L^*_{IECsRGBW} = s_W L_{nW}^{1/2,4}$ | $L_{rU} = L/L_U$ | $L_{rW} = L/L_W$ | $L^*_{CIELABW} = c_W L_{nW}^{1/3} - 16$ | $L^*_{TUBLOGU} = t_U \log(L_{nU}) + 52$ |
| White P1 (light) | 180 =18*10 | 127=50+77 =s(2,00) ^{1/2,4} | 10 | 2,24 | 125=50+75 =c(2,00) ^{1/3} -16 | 120=50+70 =t log(10,00)+52 |
| White W (fluorescent paper) | 90 =18*5 | 95=50+45 =s(1,00) ^{1/2,4} | 5 | 1,00 | 95=50+45 =c(1,00) ^{1/3} -16 | 98=50+48 =t log(5,00)+52 |
| light Grey H (paper) | 40 =18*2,24 | 68=50+18 =s(0,45) ^{1/2,4} | 2,24 | 0,45 | 69=50+19 =c(0,45) ^{1/3} -16 | 73=50+23 =t log(2,24)+52 |
| Grey U (paper) | 18 | 48=50-1 =s(0,20) ^{1/2,4} | 1 | 0,20 | 49=50-0 =c(0,20) ^{1/3} -16 | 48=50-1 =t log(1,00)+52 |
| dark Grey D (paper) | 8,0 =18/2,24 | 35=50-14 =s(0,09) ^{1/2,4} | 0,45 | 0,09 | 34=50-15 =c(0,09) ^{1/3} -16 | 23=50-26 =t log(0,45)+52 |
| Black N (paper) | 3,6 =18/5 | 25=50-24 =s(0,04) ^{1/2,4} | 0,20 | 0,04 | 22=50-27 =c(0,04) ^{1/3} -16 | -1=50-51 =t log(0,20)+52 |
| Black p1 (glossy paper) | 1,8 =18/10 | 18=50-31 =s(0,02) ^{1/2,4} | 0,10 | 0,022 | 14=50-35 =c(0,02) ^{1/3} -16 | -22=50-72 =t log(0,10)+52 |

It is valid: CIELAB_W: $c_W=c=116$, IECsRGB_W: $s_W=s=100$, TUBLOG_U: $t_U=t=50/\log(5)=72$