

Farbenraum CIELAB 1976, Farbwerte, -merkmale und -arten (a' , b')

Normfarbwerte $X, Y, Z \rightarrow$ Farbmerkmale L^*, a^*, b^*

Helligkeit	$L^* = 116 (Y/Y_n)^{1/3} - 16$
RG-Buntheit	$a^* = 500 [(X/X_n)^{1/3} - (Y/Y_n)^{1/3}] = 500 [a' - a'_n] Y^{1/3}$
JB-Buntheit	$b^* = 200 [(Y/Y_n)^{1/3} - (Z/Z_n)^{1/3}] = 500 [b' - b'_n] Y^{1/3}$

Farbmerkmale $L^*, a^*, b^* \rightarrow$ Normfarbwerte X, Y, Z

Normfarbwerte	$X = X_n [(L^* + 16) / 116 + a^*/500]^3$
	$Y = Y_n [(L^* + 16) / 116]^3$
	$Z = Z_n [(L^* + 16) / 116 - b^*/200]^3$

Farbarten für CIELAB 1976, LABHNU 1977, LABHNU1 1979

CIELAB 1976, 2^0	$a' = 0,2191 (x/y)^{1/3}$	$b' = -0,08376 (z/y)^{1/3}$
LABHNU 1977	$a' = (x/y + 1/6)^{1/3} / 4$	$b' = - (z/y + 1/6)^{1/3} / 12$
LABHNU1 1979	$a' = (x/y + 1) / 15$ linear!	$b' = - (z/y + 1/6)^{1/3} / 12$
LABHNU2 1979	$a' = (x/y + 1/6)^{2/3} / 15$	$b' = - (z/y + 1/6)^{1/3} / 12$
CIELAB 1976, 10^0	$a' = 0,2193 (x_{10} / y_{10})^{1/3}$	$b' = -0,08417 (z_{10} / y_{10})^{1/3}$
Farbart-Konstanten	$a_2 = 500 (1/X_n)^{1/3} = 0,2191$	$b_2 = -200 (1/Z_n)^{1/3} = -0,08376$
CIELAB, $2^0, 10^0$	$a_{10} = 500 (1/X_{n10})^{1/3} = 0,2193$	$b_{10} = -200 (1/Z_{n10})^{1/3} = -0,08417$