

$\log[\Delta Y / \Delta Y_u]$ ΔY_{CIELAB} tristimulus-value difference
normalized to $\Delta Y_{\text{CIELAB},u}$

$$100 \quad L^* = 116 (Y/Y_n)^{1/3} - 16, \quad Y_n=100, Y_u=18, 1 \leq Y \leq 100 \quad [1d]$$

$$L^* = k_u (Y/Y_u)^{1/3} - 16, \quad k_u=116 [Y_u/Y_n]^{1/3}=65,50 \quad [2d]$$

$$dY/dY_u = (Y/Y_u)^{2/3} = [(Y/Y_n)^{2/3}] / [(Y_u/Y_n)^{2/3}] \quad [3d]$$

10

1

-1

-2

$$Y_u=18, dY_u=0,83, dY_u/Y_u=0,045$$

$$\log[(dY_u)/(dY_u)]=0, m_u=0,66$$

application
range

N threshold

0,1

1

10

Y_u=18 100

1000 Y

3 log Y