

Color threshold formula LABJNDS 1996 for *Ostwald* (o & oc) colours

$$\Delta E_{\text{JND},o}^* = Y_0 [(\Delta Y_o)^2 + (\Delta c_{ab,o} \cdot Y_o)^2]^{1/2} / (s + q \cdot Y_o)^g$$

$$= Y_0 [(\Delta Y_{oc})^2 + (\Delta c_{ab,oc} \cdot Y_{oc})^2]^{1/2} / (s + q \cdot Y_{oc})^g$$

$$a = x/y \quad a_n = x_n/y_n \quad b = -0,4 z/y \quad b_n = -0,4 z_n/y_n$$

$$c_{ab} = [a_0^2(a - a_n)^2 + b_0^2(b - b_n)^2]^{1/2} \quad n = \text{D65 or A (surround)}$$

$$Y = (Y_1 + Y_2) / 2 \quad \Delta Y = Y_1 - Y_2 \quad \Delta a = a_1 - a_2 \quad \Delta b = b_1 - b_2$$

$$p_{c,o} = c_{ab,o} / c_{ab,o} = p_{c,oc} = c_{ab,oc} / c_{ab,oc} = 1; \quad s = 0,0170 \quad q = 0,0058 \quad t = 1,0$$

$$a_0 = 1,0 \quad b_0 = 1,8 \quad Y_0 = 1,5 \quad \text{surround D65}$$

$$a_0 = 1,0 \quad b_0 = 1,7 \quad Y_0 = 1,0 \quad \text{surround A}$$

Just noticeable difference of complementary (c) *Ostwald* (o & oc) colours:

$$(a_o - a_n)Y_o = (a_{oc} - a_n)Y_{oc}; \quad (b_o - b_n)Y_o = (b_{oc} - b_n)Y_{oc}; \quad c_{ab,o}Y_o = c_{ab,oc}Y_{oc}$$

$$\Delta Y_o = \text{const} (s + q \cdot Y_o)^g / Y_o \quad \text{in luminance direction WN}$$

$$\Delta c_{ab,o} \cdot Y_o = \text{const} (s + q \cdot Y_o)^g / Y_o \quad \text{in any chromaticity direction } c_{ab}$$

$$\Delta c_{ab,oc} \cdot Y_{oc} = \text{const} (s + q \cdot Y_{oc})^g / Y_o \quad \text{and for } \textit{Ostwald} \text{ purity } p_{c,o} = p_{c,oc} = 1$$