

Elementary colour space with *Ostwald* colours oRGB_e, and colours tRGB_e

nonlinear color terms	name and relationship with tristimulus value <i>Y</i> , and the chromaticity values (<i>x</i> , <i>y</i>)	notes <i>g</i> = 1/2,4 = gamma
triangle brillance oRGB _e , see CIE R1-57	$I_{\text{oRGB},e}^* = 100 \left(Y / Y_{\text{o},e} \right)^g \quad (Y > 0; 7 \leq Y_{\text{o},e} \leq 100)$ $= 100 \left(Y / Y_n \right)^g \cdot \left(Y_n / Y_{\text{o},e} \right)^g$ $= L_{\text{aLAB}}^* \cdot \left(Y_n / Y_{\text{o},e} \right)^g$	oRGB _e , $Y_{\text{oWe}} = 100$ $41,62,19 \leq Y_{\text{tRGB}_e} \leq 100$ $45,26,84 \leq Y_{\text{tCMY}_e} \leq 100$ <i>e</i> = elementary colours
triangle brillance tRGB _e of top color solid	$I_{\text{tRGB},e}^* = 100 \left(Y / Y_{\text{t},e} \right)^g \quad (Y > 0; 7 \leq Y_{\text{t},e} \leq 100)$ $= 100 \left(Y / Y_n \right)^g \cdot \left(Y_n / Y_{\text{t},e} \right)^g$ $= L_{\text{aLAB}}^* \cdot \left(Y_n / [Y_n + p_{\text{co}}(Y_{\text{oe}} - Y_n)] \right)^g$	<i>o</i> = optimal colours of <i>Ostwald</i> of maximum chromatic value C_{ab} , see CIE R1-57
luminance difference threshold $dI_{\text{tRGB},e}^* = 1$	$dI_{\text{tRGB},e}^* / dY = dL_{\text{aLAB}}^* / dY \cdot \left(Y_n / Y_{\text{t},e} \right)^g$ $= 100g \cdot \left(Y / Y_n \right)^{g-1} \cdot \left(Y_n / Y_{\text{t},e} \right)^g$ $dY = \text{const} \cdot (Y/Y_n)^{1-g} \cdot ([Y_n + p_{\text{co}}(Y_{\text{oe}} - Y_n)]/Y_n)^g$	<i>t</i> = colours on top of colour triangle $p_{\text{eo}} = (x - x_n)/(x_o - x_n)$ = rel. excitation purity
chromaticity difference threshold	$dI_{\text{tRGB},e}^* / da = L_{\text{aLAB}}^* \cdot d[(Y_n / Y_{\text{t},e})^g] / da$ $da = L_{\text{aLAB}}^* \cdot ([Y_n + p_{\text{coa}}(Y_{\text{oe}} - Y_n)]/Y_n)^{g-1} [Y_{\text{oe}} - Y_n] / Y_n$	$p_{\text{co}} = p_{\text{eo}} \cdot y_o / y$ $p_{\text{coa}} = (a - a_n)/(a_o - a_n)$