

User friendly colorimetric CIE colour notation ncu_e^* or uic_e^* or nce_e^* and linear relation to rgb_e^* data

n_e^* relative blackness

$i_e^* = 1 - n_e^*$ relative brilliance

c_e^* relative chroma

u_e^* elementary (unique) hue text

e_e^* elementary hue number

$$n_e^* = 0; i_e^* = 1$$

$$c_e^* = 0$$

White W

5 steps

$$n_e^* = 0,25$$

$$i_e^* = 0,75$$

5 steps

Black N

$$n_e^* = 1; i_e^* = 0$$

$$c_e^* = 0$$

relative chroma c_e^*

$$c_e^* = 0,50$$

Chromatic

$$n_e^* = 0; i_e^* = 1$$

$$c_e^* = 1$$

examples for user colour notation:

$$ncu_e^* = 0,25 \ 0,50 \ R25Y_e \text{ or } uic_e^* = R25Y_0,75_0,50_e$$

or

$$nce_e^* = 0,25 \ 0,50 \ 0,0625 (=0,25/4)$$

relative opponent (r_e^*, y_e^*) chroma

$$u_{eY}^* = Y00G_e$$

$$e_{eY}^* = 0,25$$

$$u_{eG}^* = G00B_e$$

$$e_{eG}^* = 0,50$$

$$u_{eB}^* = B00R_e$$

$$e_{eB}^* = 0,75$$

$$u_e^* = R25Y_e$$

$$e_e^* = 0,0625$$

$$u_{eR}^* = R00Y_e$$

$$e_{eR}^* = 0,00$$

relative CIELAB (a_e^*, b_e^*) chroma

$$rgb_{eY}^* = 1 \ 1 \ 0$$

$$h_{ab,Y} = 92 \text{ degree}$$

$$rgb_{eX}^* = 1 \ 0,25 \ 0$$

$$h_{ab,X} = 42 \text{ degree}$$

$$= (25 + 0,25 * 67) \text{ degree}$$

$$rgb_{eG}^* = 0 \ 1 \ 0$$

$$h_{ab,G} = 162 \text{ degree}$$

$$rgb_{eR}^* = 1 \ 0 \ 0$$

$$h_{ab,R} = 25 \text{ degree}$$

colour F:

$$rgb_e^* = 0,75 \ 0,375 \ 0,25$$

$$n_e^* = 1 - r_e^* = 0,25 \text{ or}$$

$$i_e^* = 1 - n_e^* = 0,75$$

$$c^* = r_e^* - b_e^* = 0,50$$

$$rgb_{eB}^* = 0 \ 0 \ 1; \ h_{ab,B} = 272 \text{ degree}$$