

Input: Colorimetric Reflective System ORS18

for hue $h^* = lab^*h = 38/360 = 0.105$
 lab^*tch and lab^*nch



D65: hue O
LCH*Ma: 48 83 38
olv*Ma: 1.0 0.0 0.0

triangle lightness t^*

relative Inform. Technology (IT)
olv3* 1.0 1.0 1.0 (1.0)
cmyn3* 0.0 0.0 0.0 (0.0)
olv4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 95.41 -0.97 4.75
LAB*LABo 95.41 0.0 0.0
LAB*TCHo 99.99 0.01 -

relative CIELAB lab*
lab*lab 1.0 0.5 0.0 (0.0)
lab*tch 1.0 0.0 - (0.0)
lab*nch 1.0 0.0 - (0.0)
relative Natural Colour (NC)
lab*lrj 1.0 0.0 0.0 (0.0)
lab*nce 1.0 0.0 0.0 (0.0)

relative Inform. Technology (IT)
olv3* 0.5 0.5 0.5 (1.0)
cmyn3* 0.5 0.5 0.5 (0.0)
olv4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 56.71 -0.23 2.14
LAB*LABo 56.71 0.0 0.0
LAB*TCHo 50.0 0.01 -

relative CIELAB lab*
lab*lab 0.5 0.0 0.0 (0.0)
lab*tch 0.5 0.0 - (0.0)
lab*nch 0.5 0.0 - (0.0)
relative Natural Colour (NC)
lab*lrj 0.5 0.0 0.0 (0.0)
lab*nce 0.5 0.0 0.0 (0.0)

relative Inform. Technology (IT)
olv3* 0.0 0.0 0.0 (1.0)
cmyn3* 1.0 1.0 1.0 (0.0)
olv4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 18.02 0.5 -0.46
LAB*LABo 18.02 0.0 0.0
LAB*TCHo 0.01 0.01 -

relative CIELAB lab*
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 1.0 0.0 - (0.0)
lab*nch 1.0 0.0 - (0.0)
relative Natural Colour (NC)
lab*lrj 0.0 0.0 0.0 (0.0)
lab*nce 0.0 0.0 0.0 (0.0)

$n^* = 1.0$

ORS18; adapted (a) CIELAB data

	$L^* = L_a$	a^*a	b^*b	C^*ab,a	h^*ab,a
OmA	47.94	65.37	50.52	82.62	38
YMa	90.37	-10.27	91.77	92.34	96
YMa	50.9	-62.79	34.95	71.87	151
CMa	58.62	-30.35	-45.01	54.3	236
VMa	25.71	31.11	-44.42	54.24	305
MMa	48.13	75.27	-8.35	75.73	354
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.66	26.98	64.56	25
ICIE	81.26	-2.17	67.76	67.79	92
GCIE	52.23	-42.26	11.75	43.87	164
BCIE	30.57	1.15	-46.84	46.87	271

relative Inform. Technology (IT)
olv3* 1.0 0.5 0.5 (1.0)
cmyn3* 0.0 0.5 0.5 (0.0)
olv4* 1.0 0.5 0.5 (1.0)
cmyn4* 0.0 0.5 0.5 (0.0)
standard and adapted CIELAB
LAB*LAB 71.67 32.15 28.41
LAB*LABo 71.67 32.15 28.41
LAB*TCHo 75.0 41.3 37.7

relative CIELAB lab*
lab*lab 0.693 0.396 0.306
lab*tch 0.75 0.5 0.105
lab*nch 0.0 0.5 0.105
relative Natural Colour (NC)
lab*lrj 0.693 0.477 0.15
lab*nce 0.75 0.5 0.048
lab*nce 0.0 0.5 r19j

relative Inform. Technology (IT)
olv3* 0.5 0.0 0.0 (1.0)
cmyn3* 0.5 1.0 0.0 (0.0)
olv4* 0.5 0.5 0.5 (0.5)
cmyn4* 0.0 0.5 0.5 (0.5)
standard and adapted CIELAB
LAB*LAB 32.98 32.9 25.8
LAB*LABo 32.98 32.98 25.25
LAB*TCHo 25.01 41.3 37.7

relative CIELAB lab*
lab*lab 0.193 0.396 0.306
lab*tch 0.25 0.5 0.105
lab*nch 0.5 1.0 0.105
lab*lrj 0.193 0.477 0.15
lab*nce 0.25 0.5 0.048
lab*nce 0.5 0.5 r19j

relative Inform. Technology (IT)
olv3* 1.0 0.0 0.0 (1.0)
cmyn3* 0.0 1.0 0.0 (0.0)
olv4* 1.0 0.0 1.0 (1.0)
cmyn4* 0.0 0.0 1.0 (0.0)
standard and adapted CIELAB
LAB*LAB 47.95 65.29 52.06
LAB*LABo 47.95 65.36 50.51
LAB*TCHo 50.0 82.6 37.7

relative CIELAB lab*
lab*lab 0.387 0.791 0.611
lab*tch 0.387 0.5 0.0
lab*nch 0.0 1.0 0.105
relative Natural Colour (NC)
lab*lrj 0.387 0.5 0.0
lab*nce 0.5 1.0 0.248
lab*nce 0.0 1.0 r19j

$n^* = 0.00$

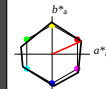
blackness n^*

relative Inform. Technology (IT)
olv3* 0.0 0.0 0.0 (1.0)
cmyn3* 1.0 1.0 1.0 (0.0)
olv4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 11.01 0.07 0.01
LAB*LABo 11.01 0.0 0.0
LAB*TCHo 0.01 0.01 -

relative CIELAB lab*
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 1.0 0.0 - (0.0)
lab*nch 1.0 0.0 - (0.0)
relative Natural Colour (NC)
lab*lrj 0.0 0.0 0.0 (0.0)
lab*nce 0.0 0.0 0.0 (0.0)

Output: Colorimetric Reflective System NRS11

for hue $h^* = lab^*h = 24/360 = 0.067$
 lab^*tch and lab^*nch



D65: hue R
LCH*Ma: 53 84 24
olv*Ma: 1.0 0.0 0.0

triangle lightness t^*

relative Inform. Technology (IT)
olv3* 1.0 1.0 1.0 (1.0)
cmyn3* 0.0 0.0 0.0 (0.0)
olv4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 95.41 0.0 -0.01
LAB*LABo 95.41 0.0 0.0
LAB*TCHo 99.99 0.01 -

relative CIELAB lab*
lab*lab 1.0 0.0 0.0 (0.0)
lab*tch 1.0 0.0 - (0.0)
lab*nch 1.0 0.0 - (0.0)
relative Natural Colour (NC)
lab*lrj 1.0 0.0 0.0 (0.0)
lab*nce 1.0 0.0 0.0 (0.0)

relative Inform. Technology (IT)
olv3* 0.5 0.5 0.5 (1.0)
cmyn3* 0.5 0.5 0.5 (0.0)
olv4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 53.21 0.04 0.0
LAB*LABo 53.21 0.0 0.0
LAB*TCHo 50.0 0.01 -

relative CIELAB lab*
lab*lab 0.5 0.0 0.0 (0.0)
lab*tch 0.5 0.0 - (0.0)
lab*nch 0.5 0.0 - (0.0)
relative Natural Colour (NC)
lab*lrj 0.5 0.0 0.0 (0.0)
lab*nce 0.5 0.0 0.0 (0.0)

relative Inform. Technology (IT)
olv3* 0.0 0.0 0.0 (1.0)
cmyn3* 1.0 1.0 1.0 (0.0)
olv4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 11.01 0.07 0.01
LAB*LABo 11.01 0.0 0.0
LAB*TCHo 0.01 0.01 -

relative CIELAB lab*
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 1.0 0.0 - (0.0)
lab*nch 1.0 0.0 - (0.0)
relative Natural Colour (NC)
lab*lrj 0.0 0.0 0.0 (0.0)
lab*nce 0.0 0.0 0.0 (0.0)

$n^* = 1.0$

relative Inform. Technology (IT)
olv3* 1.0 0.5 0.5 (1.0)
cmyn3* 0.0 0.5 0.5 (0.0)
olv4* 1.0 0.5 0.5 (1.0)
cmyn4* 0.0 0.5 0.5 (0.0)
standard and adapted CIELAB
LAB*LAB 74.3 38.55 17.16
LAB*LABo 74.3 38.52 17.16
LAB*TCHo 75.0 42.17 24.01

relative CIELAB lab*
lab*lab 0.75 0.457 0.203
lab*tch 0.75 0.5 0.067
lab*nch 0.0 0.5 0.067
relative Natural Colour (NC)
lab*lrj 0.75 0.5 -0.009
lab*nce 0.75 0.5 0.997
lab*nce 0.0 0.5 0.998

relative Inform. Technology (IT)
olv3* 0.5 0.0 0.0 (1.0)
cmyn3* 0.5 1.0 0.0 (0.0)
olv4* 1.0 0.5 0.5 (0.5)
cmyn4* 0.0 0.5 0.5 (0.5)
standard and adapted CIELAB
LAB*LAB 32.1 38.58 17.16
LAB*LABo 32.1 38.52 17.16
LAB*TCHo 25.01 42.17 24.01

relative CIELAB lab*
lab*lab 0.25 0.457 0.203
lab*tch 0.25 0.5 0.067
lab*nch 0.5 1.0 0.067
lab*lrj 0.25 0.5 -0.009
lab*nce 0.25 0.5 0.997
lab*nce 0.5 0.5 0.998

relative Inform. Technology (IT)
olv3* 0.0 0.0 0.0 (1.0)
cmyn3* 1.0 1.0 1.0 (0.0)
olv4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 11.01 0.07 0.01
LAB*LABo 11.01 0.0 0.0
LAB*TCHo 0.01 0.01 -

relative CIELAB lab*
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 1.0 0.0 - (0.0)
lab*nch 1.0 0.0 - (0.0)
relative Natural Colour (NC)
lab*lrj 0.0 0.0 0.0 (0.0)
lab*nce 0.0 0.0 0.0 (0.0)

relative Inform. Technology (IT)
olv3* 1.0 0.0 0.0 (1.0)
cmyn3* 0.0 1.0 1.0 (0.0)
olv4* 1.0 0.0 1.0 (1.0)
cmyn4* 0.0 1.0 1.0 (0.0)
standard and adapted CIELAB
LAB*LAB 53.2 77.09 34.32
LAB*LABo 53.2 77.04 34.31
LAB*TCHo 50.0 84.34 24.01

relative CIELAB lab*
lab*lab 0.5 0.913 0.407
lab*tch 0.5 1.0 0.067
lab*nch 0.0 1.0 0.067
lab*lrj 0.5 0.913 0.407
lab*nce 0.5 1.0 0.997
lab*nce 0.0 1.0 0.998

relative Inform. Technology (IT)
olv3* 0.5 0.0 0.0 (1.0)
cmyn3* 0.5 1.0 0.0 (0.0)
olv4* 1.0 0.5 0.5 (0.5)
cmyn4* 0.0 0.5 0.5 (0.5)
standard and adapted CIELAB
LAB*LAB 32.1 38.58 17.16
LAB*LABo 32.1 38.52 17.16
LAB*TCHo 25.01 42.17 24.01

relative CIELAB lab*
lab*lab 0.5 0.913 0.407
lab*tch 0.5 1.0 0.067
lab*nch 0.0 1.0 0.067
lab*lrj 0.5 0.913 0.407
lab*nce 0.5 1.0 0.997
lab*nce 0.0 1.0 0.998

relative Inform. Technology (IT)
olv3* 0.0 0.0 0.0 (1.0)
cmyn3* 1.0 1.0 1.0 (0.0)
olv4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 11.01 0.07 0.01
LAB*LABo 11.01 0.0 0.0
LAB*TCHo 0.01 0.01 -

relative CIELAB lab*
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 1.0 0.0 - (0.0)
lab*nch 1.0 0.0 - (0.0)
relative Natural Colour (NC)
lab*lrj 0.0 0.0 0.0 (0.0)
lab*nce 0.0 0.0 0.0 (0.0)

$n^* = 0.00$

blackness n^*

relative Inform. Technology (IT)
olv3* 0.0 0.0 0.0 (1.0)
cmyn3* 1.0 1.0 1.0 (0.0)
olv4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 11.01 0.07 0.01
LAB*LABo 11.01 0.0 0.0
LAB*TCHo 0.01 0.01 -

relative CIELAB lab*
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 1.0 0.0 - (0.0)
lab*nch 1.0 0.0 - (0.0)
relative Natural Colour (NC)
lab*lrj 0.0 0.0 0.0 (0.0)
lab*nce 0.0 0.0 0.0 (0.0)

$n^* = 1.0$

TE120-7, 3 step scales for constant CIELAB hue 38/360 = 0.105 (left)

BAM-test chart TE12; Colorimetric systems ORS18 & NRS11
D65: 2 coordinate data of 3 step colour scales for 10 hues

3 step scales for constant CIELAB hue 24/360 = 0.067 (right)

input: `olv* setrgbcolor`

output: `olv* setrgbcolor / w* setgray`