

APPLIED PHYSICS 187
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Activity 8

COLOR

DIFFERENCE



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2015-04622



Results

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Table1. Color Difference of Macbeth color rendition in CIE L*a*b* color space using a D65 illuminant and a fluorescent illuminant.

PATCH	CIE 76DE	DE in Chroma and Hue
1	3.75	2.12
2	4.01	1.34
3	4.30	2.69
4	1.81	0.94
5	2.23	2.23
6	6.40	2.49
7	8.18	6.15
8	4.11	3.74
9	8.38	7.38
10	2.58	1.84
11	2.82	1.57
12	7.15	3.82
13	4.30	4.13
14	5.50	3.30
15	12.86	12.22
16	4.77	3.13
17	8.04	7.18
18	7.70	5.11
19	2.93	2.94
20	2.56	2.56
21	2.20	2.20
22	1.83	1.82
23	1.45	1.44
24	1.02	3.29

In this activity, I used the illuminants D65 and Fluorescent to render the XYZ tristimulus values. I then converted these values to CIE L*a*b* colorspace using the formulas in [1]. The color difference (dE, delta E) was then measured as per CIE 76DE and DE in Chroma and Hue. The tabulated color difference of Macbeth 24 patches is shown in Table 1. DE less than 2.3 were highlighted to indicate which color patches had the minimal color difference when rendered under the fluorescent and D65 light sources.

Reference:
[1] M. Soriano. *Uniform Color Spaces, Color Difference and Color Appearance Phenomena* (2019).