Acta Scientific Ophthalmology (ISSN: 2582-3191)

Volume 4 Issue 3 March 2021

Short Communication

# Importance of Colorimetric Quantities in Ophthalmology and Optometry

**Nilgun Baydogan***

*Istanbul Technical University, Energy Institute, Ayazaga Campus, Maslak, Istanbul, Turkey*

***Corresponding Author:** Nilgun Baydogan, Istanbul Technical University, Energy Institute, Ayazaga Campus, Maslak, Istanbul, Turkey.

**Received:** January 08, 2021

**Published:** February 16, 2021

© All rights are reserved by **Nilgun Baydogan.**

The explanation of the nature of colour has critical importance in ophthalmology and optometry. Colour is one of the most distinguishing characteristics of people vision. In order to understand how colour affects our vision, it will be significant to understand how colour develops. Because the vision sensitivity problems of optical materials used in ophthalmology and optometry pertain to variations in colour. The evaluation of variations in the colourimetric quantities is important to compare the optical performance. The investigation of the colourimetric changes provides information on optical properties to determine colourimetric quantities by using the CIE and CIELAB colour systems. The colour parameters and optical bandgap present a relation between the dominant wavelength of the reflectance in the visible range. When impurity atoms are available in the optical structure, the colour of the material can be affected depending on the valance state of impurity atoms occurring at different colour ranges. Excitation purity and dominant wavelength are determined by using the colour coordinates at the chromaticity diagrams or chromaticity charts. Determination of ionic impurities, colour centres and defects depending on the purity and state of oxidation (stoichiometry) are important for the usage of material in optical instruments. These parameters can be accepted as the control parameters to assess the colouration in the optical material. The colour coordinates are determined by using y co-ordinate as a function of the x coordinate to determine the colour in the two-dimensional system as a chromaticity chart. The colour is explained in terms of colour dominant wavelength (the light most dominant in the beam), excitation purity (the saturation or purity of the colour) and brightness. The changes of the colour coordinates (depending on changes in transmittance and reflectance) indicate increasing dominant wavelength and excitation purity at the optical material. The more opaque materials have greater colour in both CIE and CIELAB system when the more opaque materials compare to more transparent materials. The researches on the coated optical materials indicate that the determination of changes in its colour co-ordinate parameters may be more sensitive in the CIELAB system than CIE tristimulus to distinguish the colour difference in the optical materials.

**Assets from publication with us**

- Prompt Acknowledgement after receiving the article
- Thorough Double blinded peer review
- Rapid Publication
- Issue of Publication Certificate
- High visibility of your Published work

**Website:** www.actascientific.com/

**Submit Article:** www.actascientific.com/submission.php

**Email us:** editor@actascientific.com

**Contact us:** +91 9182824667