

# ISO/TR 28642:2016-12 (E)

## Dentistry - Guidance on colour measurement

---

<b>Contents</b>		<b>Page</b>
Foreword .....		iv
Introduction .....		v
<b>1</b>	<b>Scope .....</b>	<b>1</b>
<b>2</b>	<b>Normative references .....</b>	<b>1</b>
<b>3</b>	<b>Terms and definitions .....</b>	<b>1</b>
<b>4</b>	<b>Visual and instrumental colour assessment .....</b>	<b>3</b>
4.1	Devices .....	3
4.2	Setting .....	4
4.2.1	Illuminant .....	4
4.2.2	Standard observer .....	4
4.2.3	Geometric conditions .....	4
4.2.4	Illuminance .....	4
4.2.5	Visual angle of subtense .....	4
4.2.6	Background .....	4
4.2.7	Surround .....	4
4.2.8	Additional/other considerations .....	5
<b>5</b>	<b>Observers .....</b>	<b>5</b>
5.1	Evaluation of colour competency of candidate for observer in studies on acceptability or perceptibility in dentistry .....	5
5.1.1	Ishihara colour blindness test .....	5
5.1.2	Farnsworth-Munsell 100 hue test .....	5
5.1.3	Test for colour discrimination competency in dentistry .....	5
5.2	Guidelines for observer selection for acceptability or perceptibility evaluation in dentistry .....	5
5.2.1	General tests .....	5
5.2.2	Test for colour discrimination competency in dentistry .....	5
5.2.3	Testing intervals for qualified observers .....	6
<b>6</b>	<b>Testing of acceptability and perceptibility thresholds .....</b>	<b>6</b>
6.1	Tissues and materials to be tested for perceptibility and acceptability thresholds .....	6
6.2	Test methods .....	6
6.2.1	Visual judgments .....	6
6.2.2	Instrumental evaluation .....	6
<b>7</b>	<b>Application and interpretation .....</b>	<b>6</b>
7.1	Colour compatibility .....	7
7.1.1	Colour compatibility between dental material and human tissues .....	7
7.1.2	Colour compatibility between dental materials .....	7
7.1.3	Coverage error of dental shade guides .....	7
7.2	Colour stability .....	7
7.2.1	Colour stability during fabrication/at placement .....	7
7.2.2	Colour stability after aging and staining[12] .....	7
7.3	Colour interactions .....	7
7.3.1	Colour shifting of aesthetic restorative materials[13][14] .....	7
7.3.2	Masking potential of opaque materials .....	8

8	Reporting of colour and colour difference assessment .....	8
8.1	Illuminant .....	8
8.2	Object .....	8
8.3	Observer/instrument .....	8
8.3.1	Observer .....	8
8.3.2	Instrument .....	9
	Bibliography .....	10