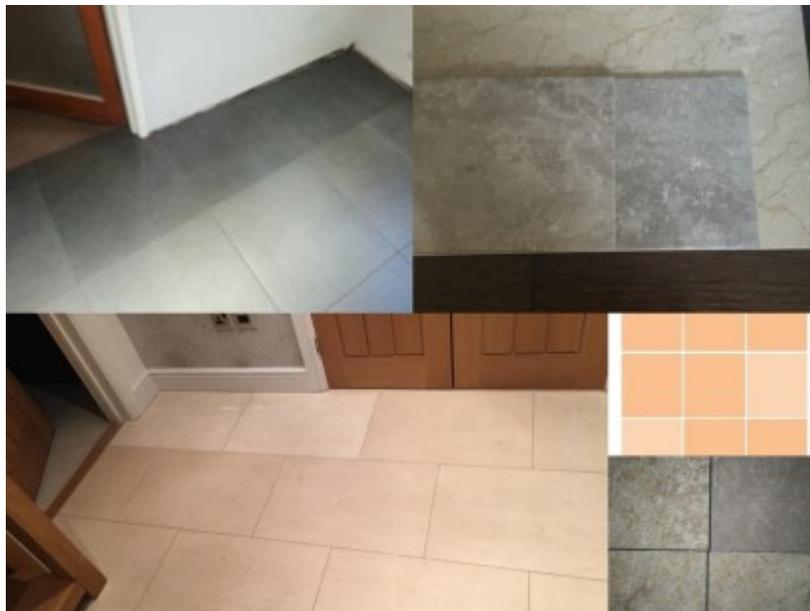


Sensegood spectrophotometer for color measurement and quality - consistency control in ceramics, tiles, slurry, potteries, and studying archaeological ceramics



Photo: Customers experience emotional and psychological effects based on color. People tend to feel good or sad depending on surrounding color. Little off color tile would ruin the complete appearance.



Images: Tile color mismatch. Sources: tileforums.com, houzz.com, pistonheads.com, gharpedia.com, beaumont-tiles.com.au

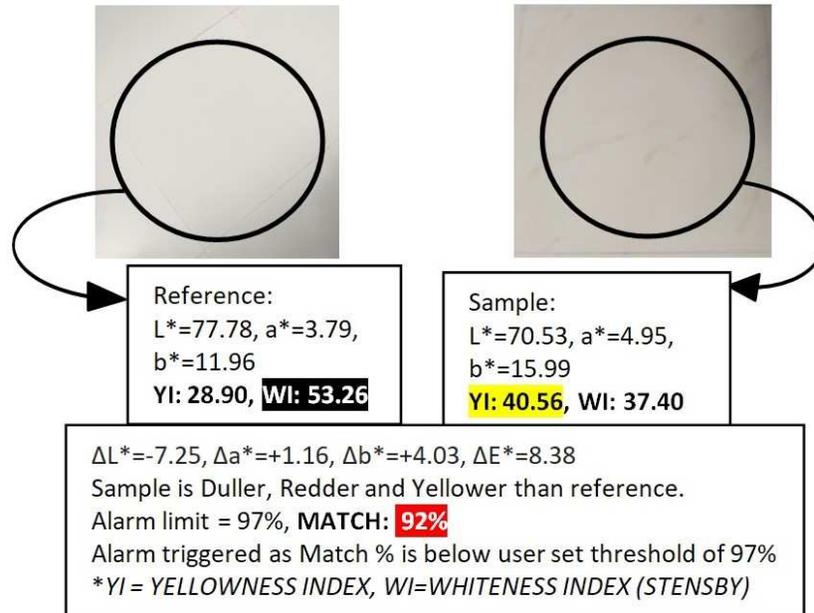
After receiving mismatched tiles, James posts at tileforums.com, “Was it my fault for ordering the second batch without realizing there could be a colour difference? Was it the tiler's fault for not advising me about the colour difference knowing I was ordering a second batch, for not checking the labels/colour and/or mixing boxes before lying? Was it the distributor's fault for accepting the second tile order knowing we had another order for the same tile previously...? Additionally, I'm not quite sure how to resolve it. I guess I will have to contact the distributor to see if they can match the previous batch and rip the off-colour ones up?” There are many such customers who face frustrating tile color mismatch for second time ordering or in filling up the remaining order.

Maintaining color quality in tile production using Spectrophotometer:



Photo: Morbi tiles factory. Source: morbiceramicindustry.com

Maintaining color quality of slurries or ceramic tiles, Sensegood spectrophotometer assists in color quality control in online/in-process, benchtop/table-top or handheld/portable measurement applications. It is very important for tile manufacturers to maintain color consistency in ceramic tiles across batch to batch productions. Even random tile color measurements in every batch, ensures color consistency and better market acceptability.



Sensegood Spectrophotometer for color measurement and quality control in ceramics

Photo: Ensuring color consistency in ceramic products. Starting from the raw material selection to production to dispatch; Sensegood spectrophotometer is the tool on which you can rely on. Its sensor has large viewing area. This enables better averaging; allows accurate and repeatable measurements.

Continuous observation on the product under process creates human eye fatigue, stress and sensitivity saturation. Hence for quality supervisor, it becomes difficult to make color quality decision of accepting, or rejecting the product. And this directly hampers the quality of the final product. While on other hand there are advantages of instrumental color quality control as it provides results with same accuracy, consistency and reliability.

Color management for tile suppliers:

Tile suppliers also use Sensegood spectrophotometers to justify the color of supplied tiles to customer by comparing it with the sample tile or with the one in catalogue. This saves lot of field cost and reduces field complaints, results in customer satisfaction. Tile color matching becomes more important for filling orders or reorders.

Importance of color consistency in potteries:



Sensegood Spectrophotometer to ensure right color and consistency in potteries

Photo: Color attributes of desired reference pottery products can be stored using Sensegood spectrophotometer. Later, each production batch can be compared with reference to ensure them to be in accepted color tolerance limit. Scientific approach toward production ensures better market acceptability in niche segment offering better prices.

One off colored saucer-cup pair will ruin the look of whole set. Regular customers and suppliers expect color consistency from a brand. Studies have proven that consumers perception toward the taste of beverage changes depending on the color of the mug. That itself makes important to supply right and consistent colored ceramic products to the customers who deal with any food and beverage.

Spectrophotometers in archaeological studies:

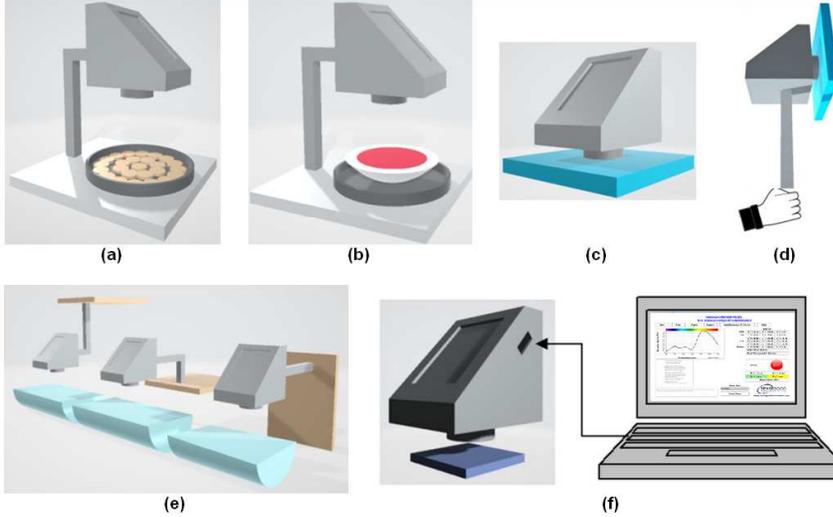


Photo: Mama shreds showing color variation (Photographs by Clifford T. Brown. Courtesy: Middle American Research Institute, Tulane University). [1]

Visible spectrophotometer is a tool used for archaeological studies by university researchers and archaeologists to carry out meaningful analysis. Color can provide trained investigator important information of the temporal, cultural, trade (routs) and functional aspects of a ceramics in ancient times. Different colors of historical ceramic shreds primarily reflect variance in clay composition, atmosphere, temperature, duration of firing [2], [3] and available pigment ingredients at the time. Use of spectrophotometer in color measurement study of ceramics can be extended to archaeological textiles, glass, potteries and other printed objects and painted walls. Bishop et al. [4] used a chromameter to measure colors in the CIE L*A*B* system for mathematical manipulation. Giardino et al. [4] considered spectral reflectance of archaeological ceramic and recorded their data as CIE tristimulus values.

Further suggested reads: [6] – [9].

SENSEGOOD SPECTROPHOTOMETER - UNIVERSAL (REFLECTANCE)



- ✓ Benchtop/ Tabletop: (a) (b) (Rotating sample platform)
- ✓ Handheld/ Portable: (c) (d)
- ✓ Online/ In-process: (e)

- ✓ Solid: (a) (c) (d) (e)
- ✓ Liquid: (b) (e)
- ✓ Paste: (b) (e)
- ✓ Powder: (a) (b) (e)

- ✓ Contact measurement: (c) (d)
- ✓ Non-contact measurement: (a) (b) (e) (Adjustable height)

- Works with:
- ✓ 5V adapter (cell phone charger)
- ✓ Power bank
- ✓ Computer/ Laptop (f)

- ✓ Averaging
- ✓ Auto repeat measurement mode
- ✓ Color match percentage
- ✓ Color indices (whiteness, yellowness, ...)

- ✓ *SensegoodSmart*
– computer interface software utility

Sensegood spectrophotometer in ceramics:

Sensegood spectrophotometer is an analytical color measurement instrument that is widely accepted in the industry and research fraternity for reliability. From raw material to final product, it comprehensively evaluates the color attributes of various samples, including solids, liquids, powders and pastes. Large viewing area (sensor’s field of view) averages out sample and produces accurate repeatable color attributes. As a result, consistency can be maintained and quality standards can be met with less waste, time, and effort.

Sensegood spectrophotometer can be used for determining color match percentage in comparison with saved standard color reference. It enables user to set color tolerance, if match percentage is below color tolerance; it warns by audible alarm and indication on LCD display. It analyzes color data and represents it in terms of various indices like whiteness index and yellowness index. Measured color is represented as reflectance graph, numerical color space values (XYZ, L*a*b*, chroma and hue), peak wavelength and color temperature. It has incorporated auto measurement mode for in-process measurements for slurry. It also has provision for averaging option in normal mode as well as in auto repeat measurement mode. Sensegood spectrophotometer is non-messy *non-contact* type instrument which has benefit of measuring sample’s color from a distance. Because of this, sensor’s optical assembly remains scratch proof enabling long life in retaining calibration. Non-contact type is particularly desired while measuring color characteristics of archaeological artifacts.

SensegoodSmart utility:

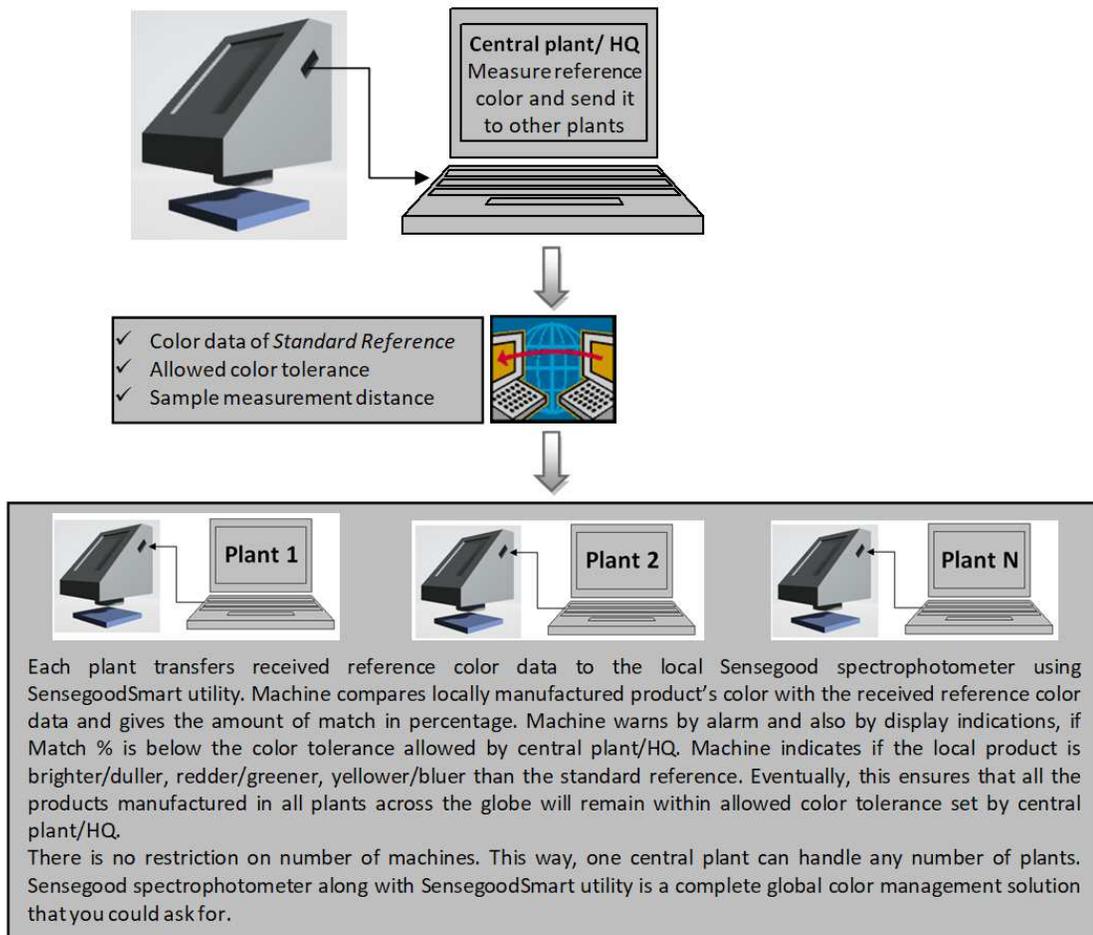


Photo: SensegoodSmart utility for color management across multiple production plants. Apart from this, SensegoodSmart utility enables user to store unlimited number of references to the computer. Any desired reference can be recalled and downloaded to Sensegood spectrophotometer whenever required. The utility provides all color related analytical information on single screen. This feature is even more desirable when using Sensegood spectrophotometer for in-process/online applications.

Sensegood spectrophotometer provides computer interface software *SensegoodSmart* which lets you to convey numeric color data across all production plants that may be located at multiple places across the globe. Each production plant uses Sensegood spectrophotometer to compare color attributes of the product manufactured in their plant with the numerical color information received from central plant or management. This enables them to reproduce each product consistently across all the plants.

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