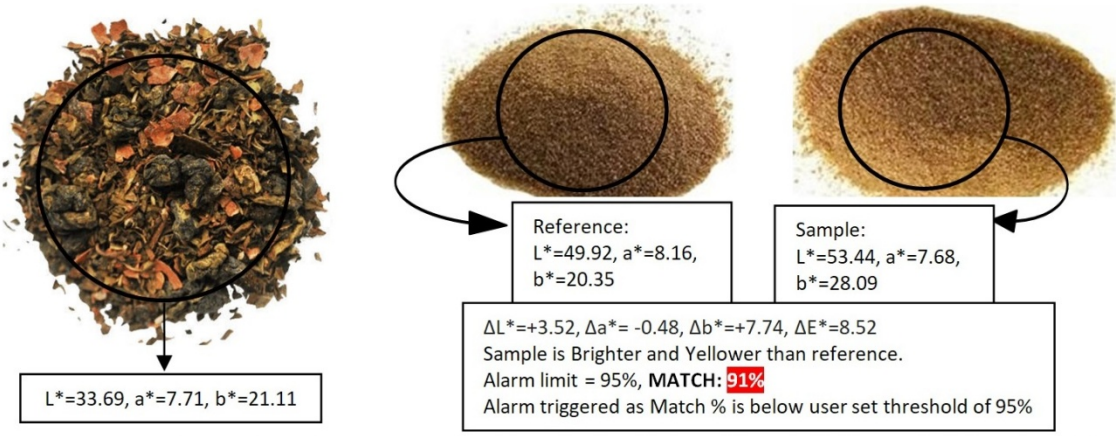
Color measurement and ingredient quality - consistency control in tea products using Sensegood spectrophotometer

Photo: There are large varieties of teas being consumed worldwide. Each tea type carries its own unique color, flavor and aroma. From left to right: Green tea (Bancha from Japan), Yellow tea (Kekecha from China), Oolong tea (Kwai flower from China), and Black tea (Assam Sonipur Bio FOP from India). Photo credits: Thanks to Haneburger, Wikimedia commons.

Measuring color at various tea processing stages enhances quality of final product drastically. Sensegood spectrophotometer averages out its field of view and indicates a single color which becomes general color representation of the sample under test. This feature becomes particularly important for color quality control of blended tea.



Sensegood Spectrophotometer for color measurement and ingredient quality-quantity control in tea products

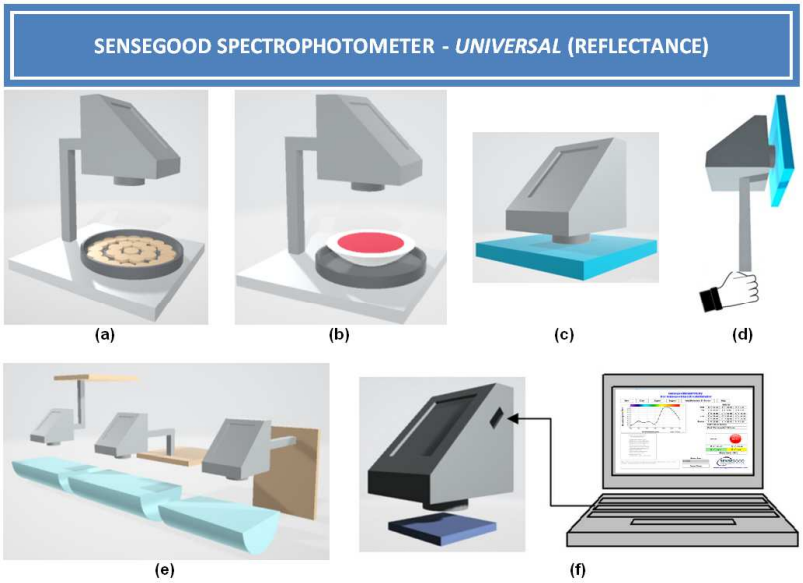
Photo: Sensegood spectrophotometer assists in color quality control of tea products. Photo cites blended tea and instant tea mix powders with added spices. Inconsistent color means inconsistent taste.

Apart from this, instant mix tea powder is becoming attractive option due to fast moving life; it remains in demand especially in tourist areas and work places. Many tea manufacturers are considering instant mix tea powder business to be ever expanding. To build and maintain brand reputation and trust amongst consumers, it is essential to control product's quality. Lighter the color, resultant tea would more be 'milky'. Darker the color, resultant tea would be 'strong'. Sensegood spectrophotometer helps in determining right color of the final instant tea mix powder which ensures the right proportion of ingredients, ultimately resulting in your product's consistency and superior market presence.

Instrumental color measurement:

Visual color matching is an art. However, when an individual sees a potential color match, because of the process of color vision, the nerve light receptors in the eye begin to fatigue. The result is that color matches begin to appear closer over time, usually after 15-20 seconds of viewing. Also viewing bright colors just before viewing deep colors can affect color judgment without enough time allowed for visual rest and recovery. There are also other factors like aging of the eye, stress and light source that affect the color match decision. Also scientifically it is proven that every individual has different expressive perception towards color.

Hence, it becomes difficult to make decision of accepting, reprocessing or rejecting the sample based on visual match. 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. Spectrophotometer is an instrument used for color measurement and analysis. It provides numerical color data, a common color language amongst manufacturers and researchers. It eliminates subjectivity in color assessments, eliminates the variability among different analysts and maximizes accuracy and precision.



- ✓ 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 for tea color quality control:

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) and rotating sample platform 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 is the versatile device that is engineered to work as handheld/portable, benchtop/table-top or in-process/online color measurement instrument.

Sensegood spectrophotometer compares color of sample with saved standard reference giving match value in percentage. If matching is poor; below set threshold, it provides audible alarm and display indication on LCD to alert operator. Hence operator can quickly react and take appropriate action. The information assists for the prompt corrective action which eventually leads to quick process parameters control, increase in the throughput and maximization of equipment usage. This surely results into low operational cost with improved product quality, consistency and market acceptability.

Do more with Sensegood spectrophotometer:

Sensegood spectrophotometer also incorporates continuous auto measurement mode. In this mode, it wakes up at user selectable intervals, takes measurement, compares the sample color with the saved reference, displays percentage match, and alarms to the operator with beeping sound in case if the matching percentage

is below preset threshold. It has provision for averaging option in normal mode as well as in auto repeat measurement mode.

Sensegood spectrophotometer provides wide varieties of indices. Measured CIE L*a*b* values indicate strength of color parameters like: bright or dull, red – green and yellow – blue respectively. Measured color is also represented as reflectance graph, peak wavelength and color temperature on color touch LCD. 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 measurement avoids any sample contact and contamination on sensor measuring surface. Hygiene is maintained, as non-contact measurement avoids any food contact and bacterial accumulation on sensor measuring surface.

SensegoodSmart utility:

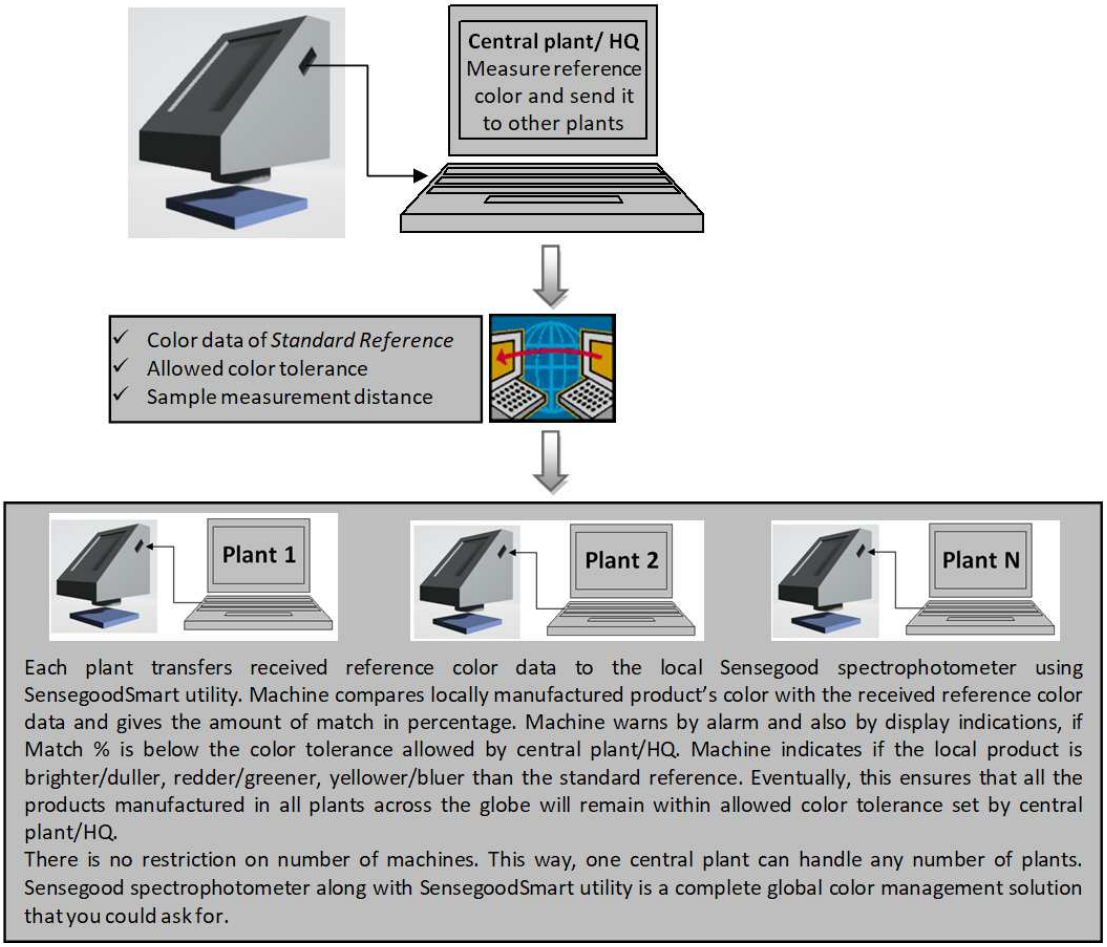


Photo: SensegoodSmart utility for color management across multiple production plants. Apart from this, SensegoodSmart utility enables user to store unlimited number of references to the computer. Any desired reference can be recalled and downloaded to Sensegood spectrophotometer whenever required. The 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. This feature is highly desirable for wide spread industry with plants at various places. It also assists in color consistency in packaging material supply chain.

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