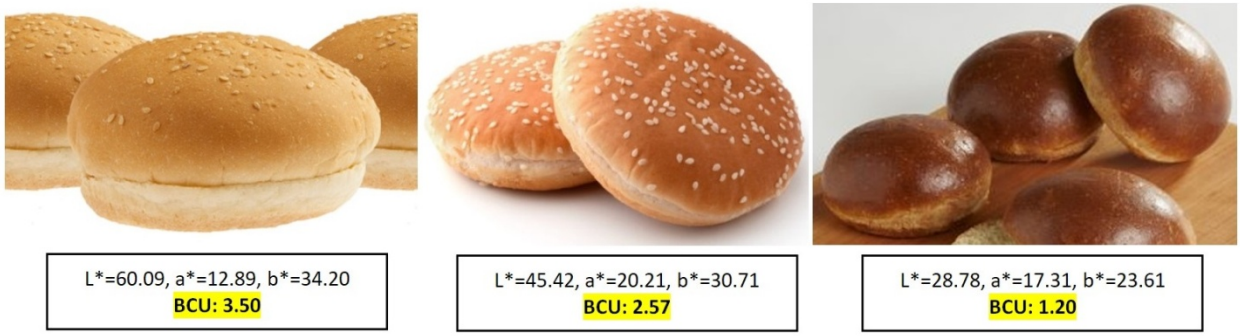
Color measurement for quality and consistency control in baked products – Measure Baking Contrast Unit (BCU) and do more with Sensegood spectrophotometer

The food business is highly competitive business. To build and maintain the brand, producer needs to adopt scientific approaches in production to achieve required product quality. Your customer expects to have consistent quality and appearance of your product from purchase to purchase. For baked items, be it sunset yellow or golden bronze, the color consistency and appearance of the product will directly affect the sales.

Sensegood spectrophotometer to maintain quality and consistency in baked products:
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 the 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.

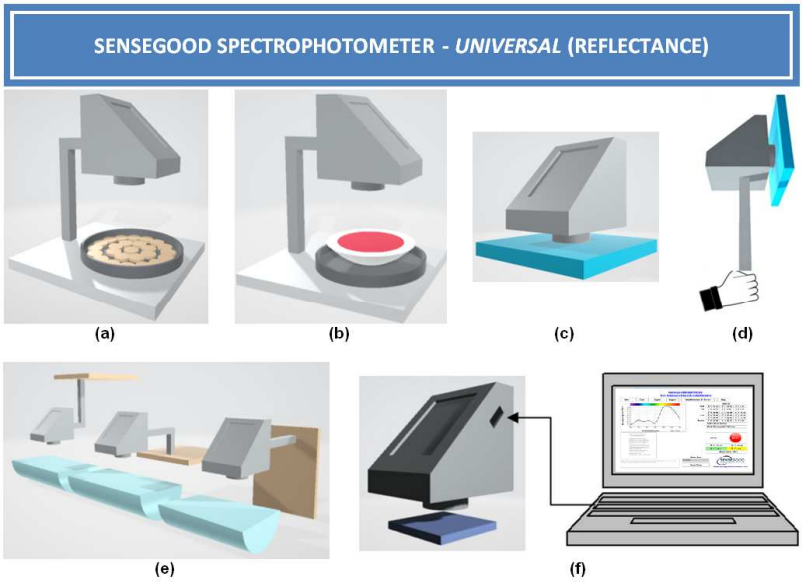


Sensegood spectrophotometer for quality and consistency control in baked products

Control the amount of baking and hence ensure the consistent appearance and taste. Photo: Measurement of Baking Contrast Unit (BCU) using Sensegood spectrophotometer.

Sensegood spectrophotometer has facility to measure Baking Contrast Unit (BCU) for baked items. BCU is the measure of the lightness or darkness of a product and it is developed specifically for the bakery food industry. BCU ranges from 0 for the darkest to 5.25 for the lightest baking.

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. Hygiene is maintained, as non-contact measurement avoids any food contact and bacterial accumulation on sensor measuring surface. Sensegood spectrophotometer is the versatile device that is engineered to work as handheld/portable, benchtop/table-top or in-process/online color measurement instrument. It represents color in numerical data which can be conveyed across production units and supply chain to maintain consistency over wide spread market.



- ✓ 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

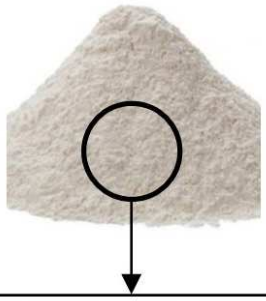
Photo: Ensure ingredient quality-quantity control and color texture in baked products using Sensegood spectrophotometer.

Photo: Color measurement, finding color match percentage, and backing contrast unit (BCU) measurement in cookies for process standardization and to ensure color consistency. Determination of color match percentage in between production sample and saved standard reference (for cookies/biscuits or any other baked product in general). Color variation over different production batches indicate process variations and inconsistent ingredient quality which results in taste inconsistencies and ultimately customer dissatisfaction. To build and maintain a brand of repute; product's consistency is one of the most important parameter to be addressed.

Reference:	Sample:
L*=56.95, a*=18.39, b*=21.36	L*=44.63, a*=19.64, b*=12.36
BCU: 3.31	**BCU: 2.51**

ΔL*=-12.32, Δa*=+1.25, Δb*=-9.00, ΔE*=15.31
Sample is Duller, Redder and Bluer (less Yellower) than reference.
Alarm limit = 90%, **MATCH: 85%**
Alarm triggered as Match % is below user set threshold of 90%

Sensegood spectrophotometer for quality and consistency control in baked products



Maida (Fine wheat flour without bran):
L*=84.28, a*=2.05, b*=3.23
Whiteness Index – Stensby: 80.74

Using Sensegood spectrophotometer, user can set desired sample as a reference and check match percentage value for production samples. 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 to pass, reprocess or reject the sample. 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.

Photo: Apart from this, Sensegood spectrophotometer has facility to measure with various indices – whiteness index and yellowness index to name a few. For instance whiteness index can be used to control raw material ingredients' quality; to evaluate whiteness index of wheat flour.

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.

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.

SensegoodSmart utility:

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.

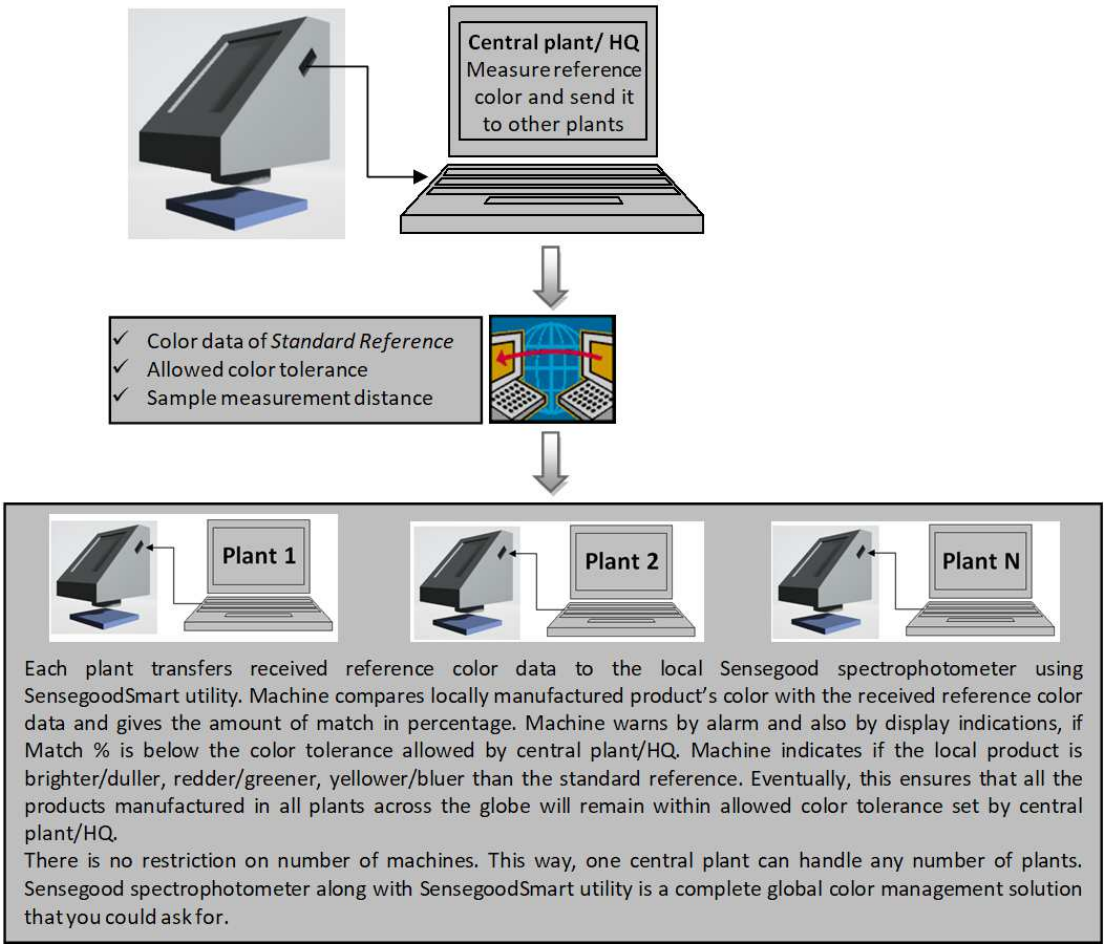


Photo: SensegoodSmart utility for color management across multiple production plants. Apart from this, SensegoodSmart utility enables user to store unlimited number of references to the computer. Any desired reference can be recalled and downloaded to Sensegood spectrophotometer whenever required. The 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.

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