

## Sensegood spectrophotometer for color measurement and quality control in ground and mixed spices



Photo: Appealing spices in vibrant colors at Anjuna flea market, Goa, India

Spices are the soul of food. One can judge food even before tasting it just by its mind triggering aroma and appearance. Apart from food, spices are also used in medicinal applications, perfumes and cosmetics.

### Importance of color in spices:

It is important to maintain a quality of spice color to achieve desired appealing food texture. Customer is not willing to buy too dull or too bright colored spices. As spices get older, they lose their aroma especially in the influence of temperature or sunlight. Dull colored spices are not preferable as they are perceived as with less aromatic oils. While on the other hand, bright colored spices create doubts of adulteration in consumer's mind. Supplying right colored spice is the market's demand driven necessity.



- ✓ 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

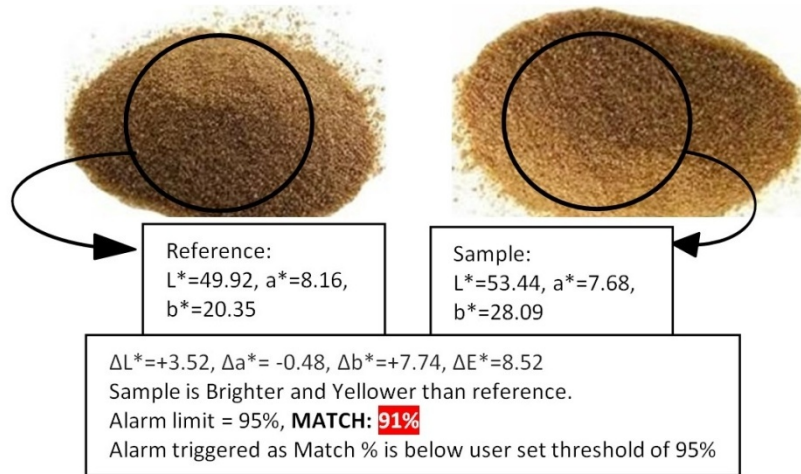
### Sensegood spectrophotometer to maintain quality and consistency in ground spices:

Sensegood spectrophotometer is 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.

### Applications:

Using Sensegood spectrophotometer, you can maintain color quality of mixed spices (*masala*) or independent whole or ground spices like:

Turmeric, ginger, chili, asafetida (hing), black pepper, garlic powder, cinnamon, nutmeg, cumin, clove, coriander, to name a few.



**Sensegood Spectrophotometer for color measurement and ingredient quality-quantity control in mixed spices**

Photo: Ensure ingredient quality-quantity control and color texture in mixed spices (*masala*) using Sensegood spectrophotometer. In photo: Determination of color match percentage in between production sample and saved standard reference. Inconsistent color of final mix indicates that the ingredient quality is not consistent 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.

Sensegood spectrophotometer is very useful especially in maintaining color quality of mixtures of spices for *masala* manufacturers. 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.



**Sensegood Spectrophotometer for color measurement in turmeric**

Photo: Measuring color components of turmeric powder using Sensegood spectrophotometer. The L\* value indicates sample's brightness, while b\* represents yellowness.

**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. 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:**

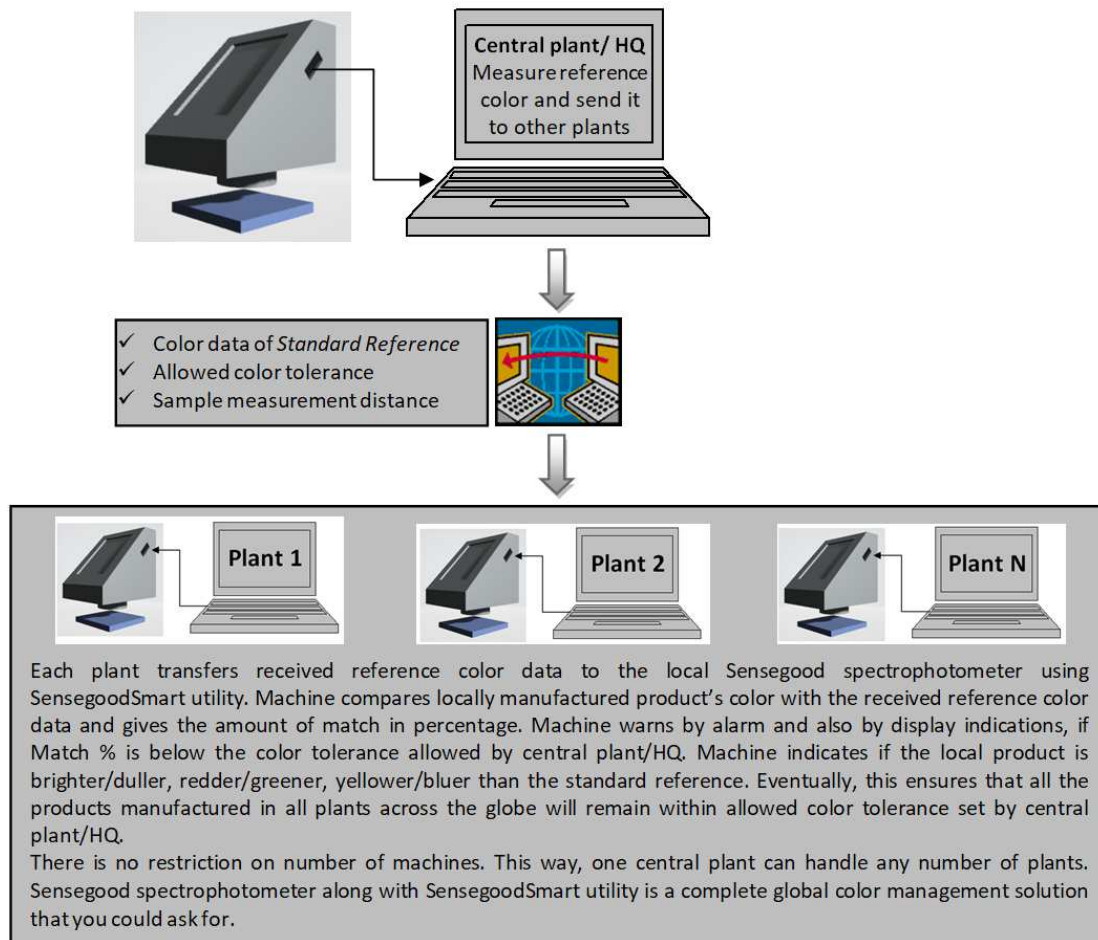


Photo: SensegoodSmart utility for color management across multiple production plants. Apart from this, SensegoodSmart utility enables user to store unlimited number of references to the computer. Any desired reference can be recalled and downloaded to Sensegood spectrophotometer whenever required. The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