

Color measurement for quality and consistency control in plastics, plaques and granules using Sensegood spectrophotometer

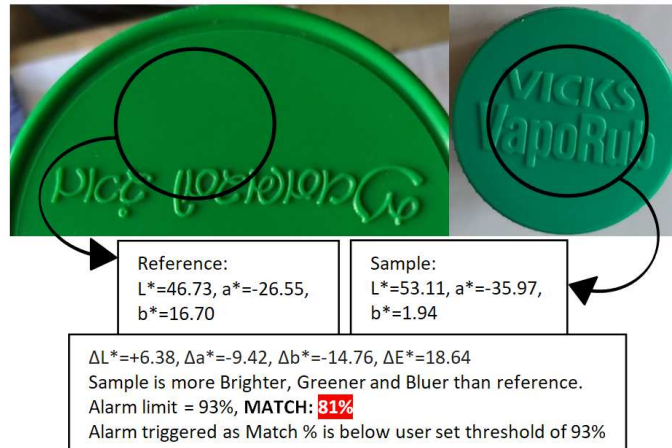


Photo: Color measurement and quality control in plastic pellets, plaques and plastic products made by forming, molding or extrusion

Color is actually a complex phenomenon, one that's governed by the interplay of physics, physiology, individual experience and memory. *Different light source, different object color you see.*

Importance of color measurement:

It is known fact that standardizing the color process improves manufacturing operations, especially when it comes to plastics. From batch to batch or plant to plant, it is imperative that the final product matches the design and to each other. There are many parameters like heat stability; dispersion and distribution of colorants affect product quality. The only way to control your plastics color consistency is to measure it, accurately.



Sensegood Spectrophotometer for color measurement and quality - consistency control in plastic products

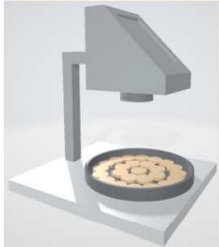
Photo: Customers recognize brands by their color. It is important for a brand to maintain consistency in its product's packaging color. Inconsistent color and appearance damages brand image.

Say for an example, if new bottle of cough suppressant is in little different in color than the older one; consumer will assume it being counterfeited and will stop using it. Maintaining packaging material's color quality is utmost necessity for any brand. Sensegood spectrophotometer assists in quality color management. In above photo: Amount of color match measured in two closely colored plastic objects. Sample is considerably bluer and brighter. Based on this information provided by Sensegood spectrophotometer, appropriate corrective actions can be taken.


Spectrophotometer in plastics:

For plastics manufacturing, plants use spectrophotometers for reflected color measurement. Spectrophotometers are quality control devices that provide numerical values for color. It allows manufacturers to establish tolerances for acceptable color. This enables molders to check pigments, parts, components and assemblies for color tolerance specifications. It helps to minimize the potential for parts rejection based on out-of-tolerance color. Numeric color control can even help plastic manufacturers to work-off odd or leftover batches by identifying color-conforming lots.

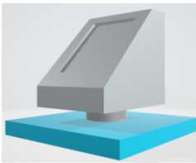
SENSEGOOD SPECTROPHOTOMETER - UNIVERSAL (REFLECTANCE)




(a)



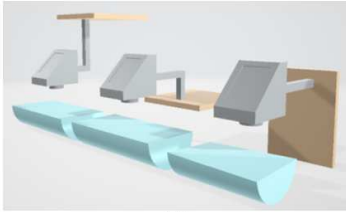
(b)



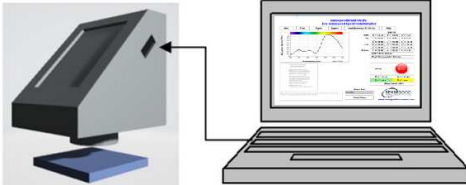
(c)



(d)



(e)



(f)

- ✓ 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 color quality management in plastic industry:

From raw material to final product, Sensegood spectrophotometer 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. It is the tool of choice for pellets, extruded and molded plastic products. Sensegood spectrophotometer removes subjectivity from color identification. It has its own independent full spectrum LED light source which enables true object color measurement. Online color measurements using Sensegood spectrophotometer in auto measurement and compare mode quickly assists for batch correction and waste work-off. It also has provision for averaging option in normal mode as well as in auto repeat measurement mode.

Achieving the desired product color with an efficient and streamlined process is the goal of every color quality process. Color samples that deviate from the standard compromise customer satisfaction. These non-uniform samples also increase the amount of rework and costs. Ensure consistency and accuracy throughout your quality process by establishing color tolerances. A color tolerance is the acceptable difference in color between a sample and the standard. For color to be acceptable, your color tolerance values should always correlate to the human eye. 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 ultimately minimizes off-quality product, increases throughput and maximizes equipment usage. This surely results into low operational cost with improved product quality, consistency and market acceptability.

Sensegood spectrophotometer provides wide varieties of indices like whiteness index and yellowness index. 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.

SensegoodSmart utility:

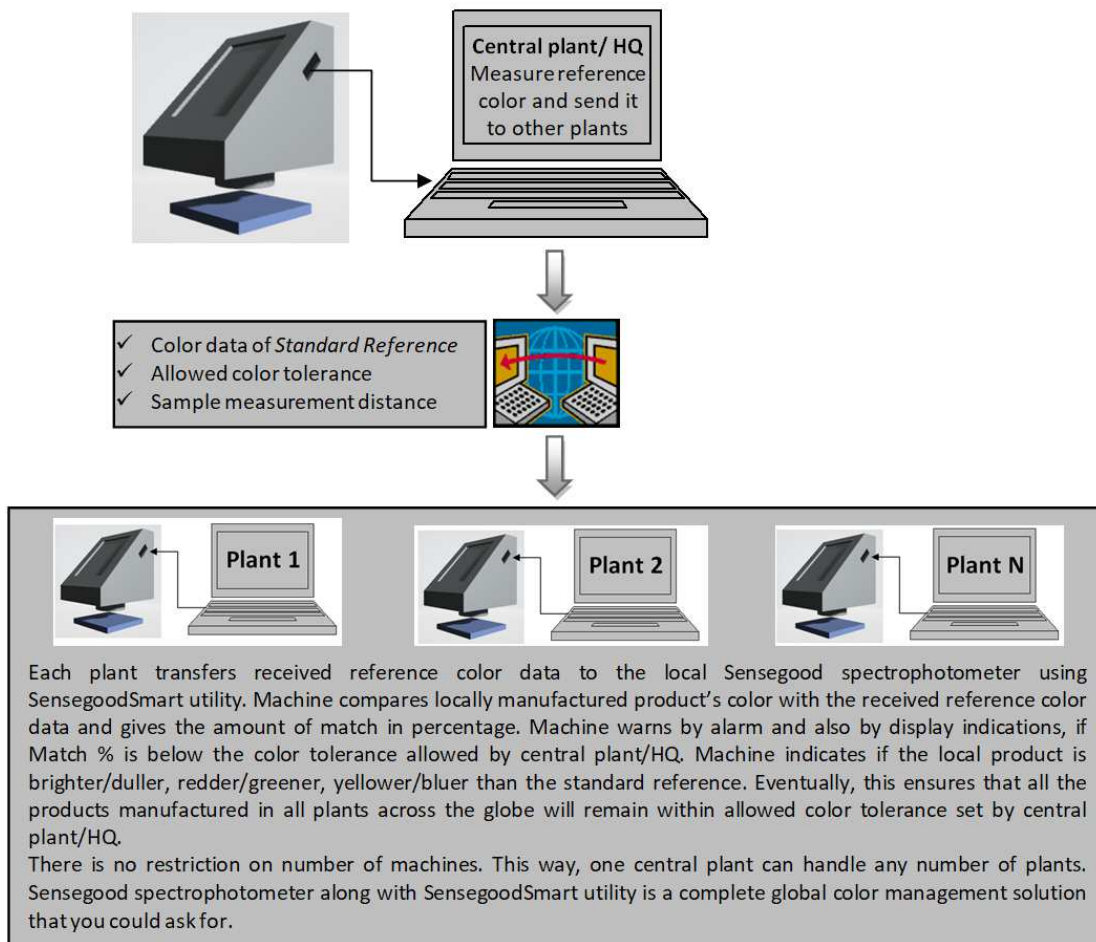


Photo: SensegoodSmart utility for color management across multiple production plants. Apart from this, SensegoodSmart utility enables user to store unlimited number of references to the computer. Any desired reference can be recalled and downloaded to Sensegood spectrophotometer whenever required. The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

Some of the international journals that publish latest research in the field:

International Journal of Plasticity, Elsevier: <https://www.journals.elsevier.com/international-journal-of-plasticity>

Journal of Elastomers and Plastics, Sage: <https://journals.sagepub.com/home/jep>

Journal of Reinforced Plastics and Composites, Sage: <https://journals.sagepub.com/home/jrp>

International Journal of Plastics Technology, Springer: <https://link.springer.com/journal/12588>

Plastics Engineering, Wiley: <https://onlinelibrary.wiley.com/journal/19419635>

Polymer-Plastics Technology and Engineering, Taylor & Francis:

<https://www.tandfonline.com/toc/lpte20/current>

Journal of Plastic Film and Sheeting, Sage: <https://journals.sagepub.com/home/jpf>

Plastic industry latest information: <https://www.plasticsnews.com/>, <https://www.plasticstoday.com/>



Photo: A consumer can walk to the shampoo aisle and know where their favorite brand is from 20 feet away – that is how color is important in brand building. Product reputation immensely gets collapsed if color consistency in packaging is not maintained.



Photo: Consistency in color and appearance is important to build and maintain the brand. Your customers demand color quality. Use Sensegood spectrophotometer to ensure color quality and supply color consistent plastic product housings.



Photo: Two same products of a same brand in slightly different color, when placed together; customer will believe one being counterfeited! Hence, it becomes extremely important to consider color consistency of a product across supply chain from various production plants. Similarly for automobile, plastic parts need to match perfectly with remaining metal body. Sensegood spectrophotometer is the one solution for all. Ensure quality color management using Sensegood spectrophotometer.



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<https://www.facebook.com/sensegoodinstruments>

<https://www.youtube.com/channel/UCtv4DiOC89iWeWbIMsbaq6Q>

<https://www.linkedin.com/company/sensegoodinstruments>