

The processed foods industry consists of a wide variety of choices, with sauces and dressing making up a large portion of these products and an expansive selection setting new market trends. With so many choices available, color perception is becoming a predominant element in quality control and consumer acceptability.

The ability to monitor color for consistency and repeatability is a mark of quality and superiority in the food industry and necessary for developing product standards and marketability. As with any food choice, color perception plays a vital role in consumer selection and provides a visual cue for food safety and acceptability. Color that does not match consumer expectations or is not consistent from batch to batch is often rejected by the consumer and can create an adverse brand perception. Color measurement throughout every stage of production ensures that products meet color perception expectations and quality standards consistently.

## Consistency and color measurement

Color consistency is a major concern when processing sauces and dressings. Evaluation can present many challenges based on variations in liquid viscosities and transparencies. Many of these products range from a clear, oil-based formula, to thick, opaque tomato- or vegetable-based consistency. In order to evaluate color perception similar to how it is experienced by the human eye, these various factors must be accounted for with the right spectral measurement system.

Spectrophotometers offer many instrumentation options that can be customized to meet the specific needs and variations in the sauce and dressing industry. By using the right sample holders, viewing angles, and geometries, these foods can be closely monitored for consistency throughout production, alerting potential changes using real-time analysis. This allows for changes to be made during the production process to ensure that final results meet color perception and quality standards.

## The effects of color of safety and flavor

Color is more than just a property of visual appeal. Color affects flavor perception and has been proven through the [scientific studies of sensory analysis](#). Even slight changes in color can alter the perceived tastes of food and lead to consumer rejection. Maintaining repeatability requires the rapid measurement process of spectral analysis to ensure consistency and final product acceptability.

Color change is also often used as an indicator for possible food contamination and can be used to monitor product safety. [Setting color parameters and using continual color process monitoring can alert production analysts to potentially dangerous changes](#). Color measurement is sensitive enough to detect changes that are otherwise invisible to the human eye and advanced instrumentation monitors these changes at even the microbial stages when bacterial growth may be evident. This technology is important for maintaining Good Manufacturing Practices (GMPs) and providing consumers with safe and superior quality foods.<sup>1</sup>

## Monitoring changes and new formulations

Over the past decade, the sauce and dressing market has undergone extensive changes when it comes to selection and variety. These changes have been designed to boost the market and meet a variety of palate preferences as well as increase market competition. However, with these new changes also comes the need for variations in the process monitoring of color.

There are many variable that affect color changes and differentiation in color perception outcomes. These innovative and creative formulation changes require new parameters to be set on color monitoring and stability testing. Many of these variations originate with the color of raw food ingredients, which also require the use of color technology and instrumentation for analysis. For example, tomato-based sauces and

dressings make up a large portion of this market and changes in color are often effective by more than just processing techniques. According to FoodProcessing.com, “for tomato-based pasta sauce...external factors like soil, temperature and sunlight could affect the taste of fresh tomatoes.” [2](#) These factors can also be monitored using color technology to ensure product quality and batch-to-batch consistency of final product evaluation.

Full article with photos available here:

<https://www.hunterlab.com/blog/color-food-industry/a-rainbow-of-choices-measuring-color-perception-of-sauces-and-dressings/>