It is a sad reality that most of the manufactured food products on the market today include the word "artificial" somewhere on their packaging label. At some point in food production history, there was a collective decision to use imitation color additives to enhance the flavor and appearance of our foods. However, consumers are now demanding more natural alternatives for food products. Although no clear evidence has revealed that there are any significant health repercussions associated with artificial food additives, the public continues to push for new regulations[1] and more natural alternatives in the ways we develop and produce our foods. Although FDA regulations on food coloring have been in place for many years, these new trends in natural coloring are forcing manufacturers to develop alternatives that boast a more natural approach to healthy food production.

Following the Wave of Change

Food **color has a significant impact on consumer perception** and choice. In fact, our preferred selection of flavors has more to with what we see than what we taste. Despite the rejection of artificial food color additives, consumers still migrate toward bold color options in many of their snack food and drink choices. Major manufacturers are keenly aware of this subliminal association between color and marketability and have utilized color assessment to monitor quality control for decades. Finding replacements for these potent artificial color additives to which consumers have grown accustomed can create challenges in color quality and control, but this is not stopping major manufacturers from jumping on board.

Leading industry manufacturers of snack foods, baked goods, and candy are all taking the initiative to transition towards more natural choices in food color additives.
Image Source: Flickr user flickr./com/photos/amanda_munoz

The ban on artificial food additives began several years ago in the U.K, which prompted many U.S. companies to begin formulating new color additives for major snack food brands. Large food corporations such as Kraft, Mars, Nestle, and General Mills are all making the shift from artificial and synthetic coloring to natural food color additives.[2]

While the FDA considers all substances used to change the color of food 'additives,' the colors in the hot seat are nine synthetic dyes derived from petroleum rather than plant-based materials.[3] Although these additive choices are still deemed safe and acceptable according to FDA regulations on food coloring, the amount of foods consumed in the U.S. that contain these artificial substances far exceed the FDA recommendations. Since we are using the same products to fuel our bodies that we use to fuel our cars, it makes it easy to see why consumers are demanding more natural alternatives.

Finding a Solution for Natural Food Color Challenges

Making the change from artificial to natural food color additives is no easy feat. As new color formulations arise, FDA approval is still required regardless of how the additive is derived. Instrumental analysis is not only important for meeting the FDA regulations on color additives, but it is essential in ensuring that color standards continue to meet consumer expectations. Although the push for natural color additives stems from consumer demand, our expectations on food color perception continue to drive marketability. **Maintaining the color intensity of our food** choices without the use of synthetic dyes requires the use of instrumental analysis to meet consumer demands.

There are many natural choices in food color additives; however, maintaining color intensity can create challenges. Spectrophotometers help monitor the color or both raw materials as well as process monitoring to achieve desired results.
Image Source: Flickr user Somewhere in the world today…

Natural food color additives include many plant-based products, which vary significantly in color intensity. Maintaining color consistency when using these natural alternatives often creates challenges in manufacturing and quality color control. Spectrophotometers offer the best solution to monitor color changes when converting raw materials into natural color additives. As new formulations are developed, spectral technology can quantify results for consistent and repeatable figures throughout process monitoring. The versatility of this instrumentation makes it an important tool in the development and standardization of new natural color additive choices.

Utilizing Color Measurement for Alternative Options

Color measurement instrumentation already plays an important role in food production and quality products. Many regulatory agencies promote the use of spectrophotometry to ensure safety and quality in our food products and the affordability and ease of use make these tools an essential part of food production and manufacturing. In order to make the most of your color measurement instrumentation, it is important to understand the various options and how they pertain to each specific industry need. For example, baked goods often utilize **caramel color additives** and require **non-uniform sample measurement** to achieve desired results. Non-contact measurement and specified color measurement geometries can reduce errors and ensure uniformity from batch to batch. Beverage products also have unique measurement needs that pertain to **liquid color measurement**, whereas solid food products require a completely different approach to accurate color measurement.

Cereals and baked good rely on uniform color and consistency for quality production. Non-contact color measurement offers the ideal solution for non-uniform samples.
Image Source: Flickr user frankieleon

Providing the right technology that also offers the support needed to utilize instrumentation to its full capability is what can set manufacturers apart from the competition. At HunterLab we offer the best of both worlds. Our expert staff has worked with many of the world's leading snack and beverage producers to develop color measurement instrumentation that is designed to meet the specific needs and challenges facing each industry. We offer unsurpassed customer service and support to help you make the most of your spectrophotometers. For more information on our product options or to learn more about the color measurement of natural additives, please **contact us** today.

1. “Demand for natural colors increases as 80% of parents cite artificial color safety concerns, survey finds,” August 4, 2015, http://www.foodnavigator-usa.com/R-D/Natural-color-demand-increases-as-parents-site-safety-concerns
2. “Food Coloring Ban in the UK But Usage Continues for USA,” October 23, 2014, http://www.biohealthbase.org/pages/food-coloring-ban-in-uk-but-usa-usage-continues/
3. “What You Need to Know About Artificial Food Coloring Phase-Outs,” February 15, 2016, http://civileats.com/2016/02/15/what-you-need-to-know-about-artificial-food-coloring-phase-outs-mars/