

The applications of plastic and polymer use in manufacturing are limitless, and industries are finding new ways to utilize this flexible and durable material all the time. With polymer prices on the rise, many major corporations are relying on spectral analysis to ensure effective product performance and to help reduce wasted materials.

Plastic films and coating make up a large portion of the plastic manufacturing industries and have been used to add strength and protection to a variety of products we use today. From wires and cords to windows and metal products, polymer coatings extend the durability and performance of these materials and provide a more economical and functional product. Spectrophotometers are able to measure plastic film and coating thickness using spectral analysis, providing a valuable method for improving both quality and cost efficiency.

Using Spectral Data to Measure Polymer Properties

Plastic is a highly durable, lightweight material, which makes it ideal for a number of manufacturing applications. These applications require instrumental analysis to measure the specific properties of polymers. These materials are typically transparent in quality and are measured using transmittance, reflectance, transparency, and color measurement methods of evaluation. By measuring these optical properties, calculations can be made to determine the thickness and reflection value of plastic coatings for precise visibility, functionality, and quality control.

Clarity and transparency is often an important attribute in plastic film applications. Spectrophotometers measure these traits using a yellowness scale or index, commonly referred to as [APHA \(American Public Health Association\) or Hazen color](#). This method is commonly used for [monitoring liquid purity](#), but these same measurement scales can be applied to a variety of manufacturing applications, where visibility and clarity are valued.

Reflectance values also play an important role in plastic film coatings, especially in window design and functionality. For product development, it is important that the reflectance of the coating allows for proper visibility while still performed the basic functions intended. Spectral analysis can provided highly specific data to accurately measure these attributes and provide a comparative analysis for product consistency and quality assurance.

Improving Efficiency and Cutting Costs

Plastic materials are highly versatile, making them a preferred choice for many industrial applications. However, with shortages and rising costs of polymer products,¹ many manufacturers are making adjustments to their production processes and analytical methods in order to improve efficiency and reduce waste. Spectral analysis is taking center stage as an option to improve production quality and efficiency. The durable, lightweight design of spectrophotometric instrumentation allows for portability and [in-line process monitoring](#), which can provide continual and accurate analysis of product development and quality.

Spectral analysis provides a specific pattern of data that is used to identify specific properties in plastic coatings and materials. When using this highly sensitive method of evaluation in combination with real-time process monitoring, production staff is automatically alerted to any errors in processing, allowing for changes to be made quickly and effectively in order to save value time and materials. Investing in advance spectral technology is an investment in product quality that can reduce costs and create a better system of production overall.

Full article with photos available here:

<https://www.hunterlab.com/blog/color-plastics/spectral-analysis-an-effective-method-for-measuring-plastic-coating-and-film-thickness/>