Spectrophotometric color matching is essential to finding or creating the perfect dyes, paints, and pigments to restore damaged or worn objects to their former glory.
Image Source: Pexels user Miguel Á. Padriñán

Spectrophotometers have become ubiquitous in the manufacturing of new products across industries due to their ability to provide accurate and repeatable color measurements for virtually all sample types. Today, these remarkable instruments play a key role in the development and manufacture of everything from **plastic preforms** to **maple syrup** and everything in between, giving producers unprecedented color quality control. However, spectrophotometers aren't just for the production of new goods; instrumental color measurement is also an essential part of the repair and restoration of existing products, allowing for precise color matching to ensure a perfect result.

At the Handbag Clinic, Ben Staerck and his team use a spectrophotometer to create custom dyes that precisely match each bag's unique color.
Image Source: Pexels user Blake Bronstad

Color Matching at the Handbag Clinic

Ben Staerck understands the value of color matching.[1] As founder and managing director of the Handbag Clinic, he and his team devote themselves to the repair and restoration of high-end handbags; Chanel, Gucci, and Chloe are just some of the names that make regular appearances in the shop. Even before the Handbag Clinic opened, Staerck was bombarded with calls from women wondering when they could start bringing in their prized bags for rejuvenation. Today, the team works on about 100 bags each week, each one receiving personalized treatment.

Sarah Millington of The Northern Echo describes the scene:

A lone Celine bag stands in a booth ready to be sprayed. There are eight technicians, each employing a range of skills to make handbags as good as new, and often the first task is applying carefully matched paint. A plastic container stands in the corner, each brand with its own range of colors. When bags come in for repair, it's useful to have this as a reference point, but, as Ben explains, it's never that simple.

Leather, after all, is an organic material and each surface tells a unique tale; although two handbags may look similar from afar, even small differences in their **response to dyes** and the environments in which they have dwelled since manufacture can create significant color variations upon close examination. "Even if another bag comes in with the exact same color, we still need to tweak it, because obviously one bag might have been exposed to more sunlight and so on," Staerck says. "Each repair is individual."

To facilitate the color matching process, the team measures each bag's color using a reflectance spectrophotometer, ensuring that light conditions, ambient colors, and **natural variations in human color perception** don't interfere with accurate color assessment. These spectrophotometric measurements allow them to blend customized dyes that will create a seamless match based on objective data rather than the subjective human gaze. This color matching system gives Staerck the ability to repair everything from the hottest new handbags to beloved heirlooms whose leathers have both immense monetary and sentimental value while giving customers the confidence they need to trust the team with their prized possessions, some of which are worth tens of thousands of dollars. The extraordinary quality made possible by Staerck's marriage of state-of-the-art technology with skilled handiwork assures even the most discriminating customers that their bags are in good hands.

Today's lightweight, portable spectrophotometers are ideally suited for color matching everything from rare motorcycle parts to historical paint colors.
Image Source: Pexels user splitshire.com

Versatility and Diversity

Spectrophotometric color matching, of course, isn't limited to handbags. The versatility of these instruments allows for easy integration within a complete range of repair and restoration facilities; today's modern, compact **portable and benchtop spectrophotometers** are ideally suited for use in **auto body work**, home repair and architectural restoration, textile repair, and even art conservation.[2] As John Pfanstiehl of the Auto Body Repair Network writes, "A spectrophotometer can be used to provide a formula instead of going through hundreds of color chips and then comparing," saving both time and labor costs while guaranteeing accurate results.[3]

But spectrophotometers don't just measure color alone; their diverse **optical geometries** give you the option of analyzing both **color and appearance**, producing both accurate and meaningful data that allow you to create an exact match regardless of attributes like gloss and texture. Unlike colorimeters, spectrophotometers are also equipped with a wide range of spectral power distributions capable of mimicking a variety of lighting conditions, enabling you to detect **illuminant metamerism**, a "phenomenon that plagues all those who must match colors."[4] As such, spectrophotometric technologies offer unparalleled color matching capabilities not found in any other instrument.

HunterLab Color Matching

HunterLab has been a pioneer in color measurement for over 60 years. Our ongoing commitment to innovation and technological excellence has made us a leading name in spectrophotometry and today our instruments are used across industries, giving our customers the highest level of color quality control. With a comprehensive line-up of portable, benchtop, and on-line spectrophotometers to choose from, you can be sure to find exactly the tools you are looking for to bring your color matching capabilities to new heights, whether you are manufacturing new products

or restoring existing materials. **Contact us** to learn more about our renowned spectrophotometers, customizable software packages, and world-class customer service.

1. "The Hospital for Handbags," June 8, 2015, http://www.thenorthernecho.co.uk/entertainment/shopsandfashion/13318375.The_hospital_for_handbags/
2. "A Mobile Spectrophotometer for Art Conservation," July 20, 2009, http://onlinelibrary.wiley.com/doi/10.1002/col.5080060206/abstract
3. "Spectrophotometers Measure Color to Help You Stay in the Black," January 1, 1998, http://www.searchautoparts.com/abrn/technicians/paint-shop/spectrophotometers-measure-color-help-you-stay-black#sthash.VQtyVNAj.dpuf
4. "Color Science in the Examination of Museum Objects," 2001, https://www.getty.edu/conservation/publications_resources/pdf_publications/pdf/color_science.pdf