

The use of essential oils is a growing trend within the health and wellness community. The therapeutic properties of these oils have been recognized and harnessed by practitioners of traditional medicine for centuries, but they have become increasingly appealing to patients, clinicians, and researchers who are looking for all-natural treatments. Indeed, studies suggest that essential oils are remarkably versatile, capable of everything from promoting relaxation to fighting skin infection to combating cancer.¹

While it is clear that essential oils offer a variety of health and wellness benefits, one drawback of these compounds is that, by volume, they are extremely expensive. This can become a particular problem for essential oil manufacturers who are developing strategies for process monitoring and quality control. Given the high investment cost, it may not seem wise to test for certain properties, such as color. However, today's spectrophotometers can enable manufacturers to overcome this problem by offering the opportunity to [measure color using smaller sample sizes](#).

Controlling Costs for the Company and the Consumer

Essential oils are highly concentrated plant extracts, so only a tiny amount is needed in order to achieve a particular therapeutic purpose. Nevertheless, because of the complexities of the process of distilling these products, even a small quantity bears a high cost. For manufacturers, this means that each color measurement during the essential oil preparation process represents a considerable investment in terms of both financial expenditure and material resource loss. This can make it tempting for some companies to forego color measurement altogether.

At the same time, when considering the issue of consumer preference, it has never been more important for essential oil companies to guarantee color consistency. Consumers have become increasingly aware of the potential safety hazards of using essential oils, knowing that they offer significant opportunities to enhance health and wellness, but that these compounds' high potential for toxicity can lead to major problems if things go wrong.² However, since most users aren't experts, they have little choice but to opt for the simplest evaluation method: visual inspection. A customer may become concerned if they notice inconsistencies in essential oil color. Therefore, adherence to consistent color can help essential oil companies maintain trust with their customer base.

In order to balance the cost of [measuring the color of expensive essential oils](#) with the need to maintain a consistent color, today's manufacturers can take advantage of instruments that measure small volumes. Due to advances in spectrophotometric technology, a number of modern spectrophotometers are now compatible with [sample holders](#) that hold smaller amounts of a product than could be analyzed by traditional spectrophotometers. As such, it becomes financially feasible for essential oil manufacturers to take the necessary measurements, both during and after the manufacturing process. Put simply, the ability to get an accurate color measurement for a tiny amount of an essential oil can completely upend the traditional cost-benefit analysis when it comes to making spectrophotometric measurements for these products.

Full article with photos available here:

<https://www.hunterlab.com/blog/color-pharmaceuticals/measuring-the-color-of-expensive-essential-oils-using-smaller-sample-sizes/>