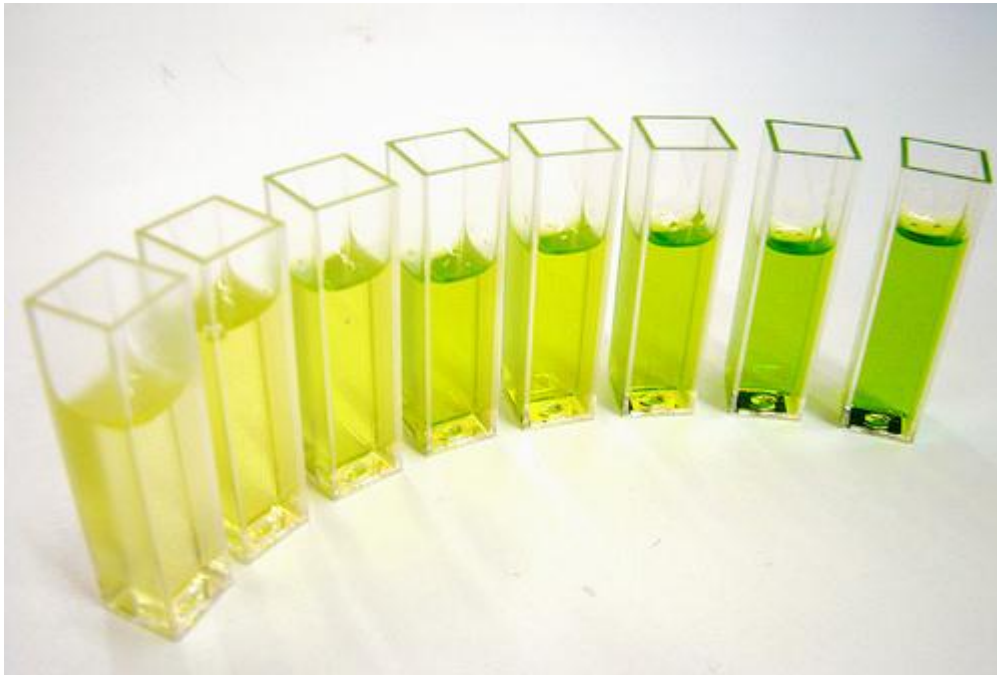


Modern spectrophotometric instrumentation has created opportunities for qualitative and quantitative liquid analysis that could only be imagined just a few short years ago. Today, spectrophotometers are an essential part of liquid analysis across industries, opening the door to greater levels of insight and control than ever before. Selecting a spectrophotometer of the highest quality specifically [designed for your purposes](#) will allow you to perform even the most complex analytics with ease and precision to obtain meaningful spectral and colorimetric data. However, the spectrophotometer itself is not the only variable to take into consideration; pairing your instrument with the best transmission cells optimizes performance and gives you the highest level of accuracy while ensuring safety. By understanding your options, you can choose the appropriate cell for your sample type and analytical requirements.



Do you need the optical clarity of glass or do you prioritize the affordability of plastic transmission cells?

Image Source: Flickr user Georgios Liakopoulos

### Transmission Cell Materials

Transmission cells, also known as cuvettes, come in both glass and plastic versions, each with their own benefits and limitations. Carefully considering your analytical needs, sample type, economic considerations, and laboratory environment will allow you to choose the cell material most compatible with your individual situation.

### Glass Cells

Glass cells are considered the gold standard for measurement performance due to their clarity, durability, and heat resistance. Although the initial cost of glass cells is higher than plastic alternatives, with proper care, you can reuse them for years. HunterLab's spectrophotometers are paired with custom manufactured glass transmission cells made of optical quality glass for the ultimate in analytical precision. Because all components are fused, not glued, solvents will not affect the material, making them ideal for use with all types of solvents. These cells are designed with two flat windows and an abraded U-shaped spacer to minimize internal reflectance and can be safely heated up to 275°C.

If you are working with higher temperatures, Pyrex glass cells are your best option. Because they are molded, these rugged transmission cells can safely handle hot solutions with greater capability than three-piece construction cells. It is important to note, however, that the performance of Pyrex glass is not as optimal as HunterLab glass cells.

#### Plastic Cells

Plastic transmission cells offer a durable and affordable alternative to glass cells, allowing them to be used on a disposable basis to avoid the risk of cross-contamination and the need for cleaning.<sup>1</sup> Unlike fragile glass cells, plastic cuvettes do not pose a breakage risk, allowing for safer handling. Despite these advantages, plastic cells have several significant limitations; because they are made of clear acrylic, they do not have the clarity of glass cells, which can potentially compromise their performance. Additionally, plastic cells may not be heated and “many of the plastic cuvettes are not compatible with most organic solvents.”<sup>2</sup> However, plastic cells are still appropriate for many applications.



Small and semi-micro transmission cells allow for accurate liquid analysis of scarce materials or adherence to miniaturized sample preparation protocols requiring only the minutest amounts of liquid.

Image Source: Unsplash user Nithya Ramanujam

#### Specialized Transmission Cells

Specialized cells are available to suit a variety of unique needs that expand your liquid analysis options and give you greater flexibility than offered by traditional options.

#### Glass Flow Through Cells

Flow through cells are designed to allow for continuous sampling of [transparent liquid products](#). HunterLab offers an innovative flow through cell made of clear annealed borosilicate that can be heated up to 100°C. To minimize air bubbles, these flow cells are aligned vertically and fed from the bottom, optimizing analytical accuracy.

#### Small and Semi-Micro Volume Cells

Traditional cells often require a significant sample volume, compromising the ability of those working with scarce or expensive resources or miniaturized sample preparation protocols to obtain accurate readings using standardized equipment. To facilitate [small sample analysis](#), HunterLab offers a specialized small volume transmission cell requiring a sample volume of only 4mL, allowing you to obtain accurate readings from minute amounts of material. Made of optically clear glass, this cell includes both an inject-a-cell top and solid propylene top to preserve valuable or scarce materials and facilitate the measurement of volatile samples. Additionally, both glass and plastic semi-micro cells are available for analysis of even smaller sample volumes, with some requiring only a 0.4mL sample to cover the viewed area.

#### Disposable Round Glass Vials

Disposable glass vials made of borosilicate glass give you the accuracy of glass and the robustness to handle corrosives, volatiles, and hot solutions. Because these cells are highly cost efficient, they can be employed on a single-use basis to avoid time-consuming cleaning and eliminate the risk of cross-contamination. The round design is ideal for material that must be centrifuged for mixing or separating, or if the materials need to be heated.

#### HunterLab Liquid Analysis

HunterLab has been at the forefront of spectrophotometric technology for over 60 years. We offer a comprehensive range of advanced instruments engineered to perform the most accurate liquid analysis possible. However, our commitment to quality does not end with our spectrophotometers; in order to facilitate analytical performance, we offer an array of innovative, custom-designed transmission cells to ensure you can measure liquid samples in a way that makes sense for you. If you have transmission cell requirements outside the scope of HunterLab's offerings, we can help you find the perfect product from one of our trusted partners to ensure performance and compatibility. [Contact us](#) to learn more about our renowned technologies and world-class customer service and let us help you find an ideal solution for your liquid analysis needs.

1. "Disposable Plastic Cuvettes for Spectrophotometric Analyses in the UV/VIS Range,"

[http://www.brand.de/fileadmin/user/pdf/Leaflets/UV\\_Kuevette\\_EN.pdf](http://www.brand.de/fileadmin/user/pdf/Leaflets/UV_Kuevette_EN.pdf)

2. "Practical Aspects of UV-Vis Spectroscopy or 'How to Get a Good UV-Vis Spectrum,'"

<http://www.chem.ucla.edu/~bacher/General/30BL/tips/UV-VIS.html>