

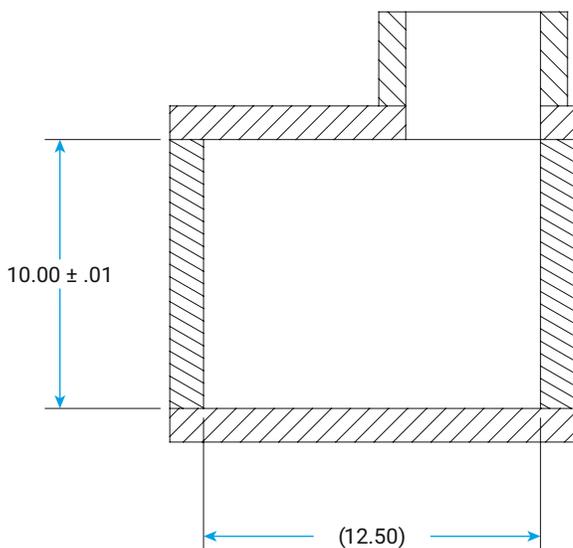
## Using the Agilent BioTek BioCell



### Introduction

The Agilent BioTek BioCell is a unique quartz vessel that allows for the absorbance determination of substances with a fixed vertical pathlength of 1 cm in a microplate reader. The BioCell can be used to measure the 1 cm absorbance in any Agilent BioTek microplate reader. It is also useful for the determination of the "k" value (the measured absorbance of the experimental solvent in a 1 cm pathlength used in pathlength correction) required to more accurately correct the absorbance of aqueous solutions in microplates to 1 cm values with Agilent BioTek microplate spectrophotometers.

BioCell has a filling port that is located next to the transmission region of the cell to allow for complete filling without interfering with the light path. The inside vertical dimension is 10.00 mm, or 1.0 cm (Figure 1).

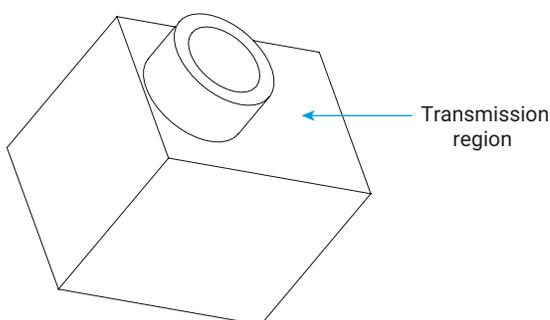


**Figure 1.** Cross-sectional diagram of the Agilent BioTek BioCell.

## Filling the BioCell

To obtain accurate readings with the BioCell, it is important that there are no air bubbles trapped in the transmission region. To avoid air bubbles, it is recommended that the BioCell be tilted so that the port is located at the top with the transmission region of the BioCell tilted downward (Figure 2).

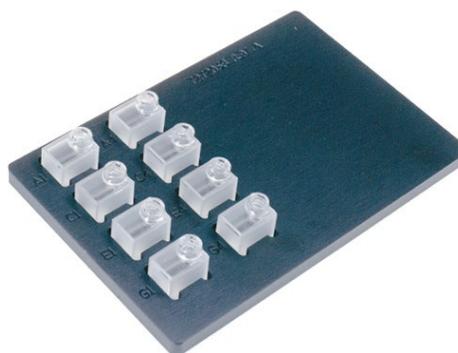
Carefully fill the BioCell using a pipettor that uses 200  $\mu\text{L}$  tips or a narrow Pasteur pipette so that the box portion of the cell fills completely. Note that the neck portion does not need to be filled to the top. Place the BioCell in the adapter so that the transmission region of the cell is located over the hole in the bottom of the adapter. The fill spout should be located over the solid support portion of the indent.



**Figure 2.** Agilent BioTek BioCell with approximate orientation for filling. The port opening is tilted upward so that the BioCell can be completely filled.

## Using the BioCell

To obtain accurate absorbance measurements, the BioCell needs to be placed in one of the wells of the BioCell adapter plate (Figure 3). Be sure to orient the BioCell so that the transmission region is located over the hole through the bottom of the adapter. The wells of the adapter are situated so that the transmission region of the BioCell will be located at specific 96-well plate locations. The adapter is capable of holding as many as eight BioCells simultaneously.



**Figure 3.** Agilent BioTek BioCell adapter with eight BioCells. The BioCells are placed in wells corresponding to specific locations on a 96-well microplate and the adapter is placed in a microplate reader carrier. The reader can perform all functions with the BioCell that it can with microplate samples.

The “k” value can be calculated by reading the filled BioCell at 977 and 900 nm, then subtracting the 900 nm reference absorbance from the 977 nm absorbance. If the determined “k” deviates from the default value of 0.180 (given in the Agilent BioTek KC4 and KCjunior data analysis software), then enter the new value at “read” time.

## Alternative uses for the BioCell

The BioCell can also be used for purposes other than pathlength correction. Because the cell allows for vertical photometry with a fixed pathlength of 1 cm, the cell can be used for spectral scans or absorbance determinations of samples. These results can then be directly compared to values obtained using a conventional spectrophotometer and cuvettes because the light pathlengths are equivalent.

## Emptying and cleaning the BioCell

To empty the BioCell, withdraw the fluid using a single-channel pipettor (200  $\mu$ L tip) or a narrow Pasteur pipette.

The BioCell is made of optical quartz and is resistant to most chemical elements, except for those containing hydrofluoric acid. It is recommended that the BioCell is cleaned by flushing with de-ionized or distilled water several times. To expedite drying, rinse the BioCell with 95% ethanol or methanol after the last water rinse.

[www.agilent.com/lifesciences/biotek](http://www.agilent.com/lifesciences/biotek)

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