DiluCell™ User Manual

Version 2.1 | last updated January 2026

Thank You for Choosing DiluCell™

This advanced, **disposable** cuvette is designed to simplify workflows and enhance accuracy for absorbance measurements—especially when working with highly concentrated samples.

DiluCell™ offers **virtual dilution** without the need to physically dilute your samples. The wide wavelength range of **340 nm – 950 nm** enables the user to incorporate the DiluCell™ 10 cuvettes for all standard applications.

The wide range of applications of our DiluCell™ 10 cuvettes include but are not limited to:

- Cell Density (OD600) – Monitoring bacterial/yeast/fungal growth
- Protein Assays – Bradford, BCA, Lowry, etc.
- Enzyme Kinetics
- Colorimetric Assays
- Turbidity/McFarland analyses

⚠ **Please read this manual carefully before use.**

Product Overview

DiluCell™ 10 simplifies concentration measurements by reducing the optical pathlength, allowing direct reading of highly concentrated samples while staying within your photometer's linear range.

- Wavelength range: **340-950 nm**
- Required sample volume: 300 µl
- Optical pathlength: 1 mm @ 8.5 mm center height
  Dilution factor: 1:10

How DiluCell™ Works

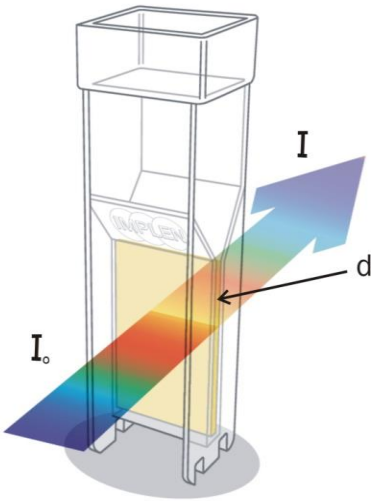
The Lambert-Beer-Law, also known as Beer's Law, empirically relates the absorption of light to the properties of the sample.

Lambert-Beer Law:

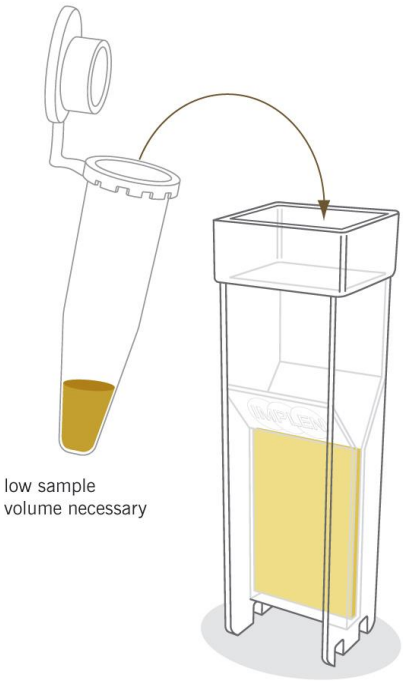
$$Abs = \log \frac{I_0}{I} = \varepsilon \times c \times d$$

Where:

I_0	=	incoming light
I	=	outgoing light
E	=	extinction coefficient
C	**=**	**concentration**
D	=	pathlength (1mm @ 8.5mm center height)



IMPLEN DiluCell™



IMPLEN DiluCell

Built-in Virtual Dilution

Traditional cuvettes require manual sample dilution and volumes of at least 1 ml.

The innovative design of the DiluCell™ 10 reduces the light path from the standard 10mm to just 1mm, thereby enabling a **built-in 1:10 virtual dilution** in accordance with the Lambert-Beer Law.

This allows you to work with smaller sample volumes (only 300 µl), while eliminating manual dilution steps, saving time, and minimizing the risk of dilution/pipetting errors and cross-contamination.

Operating Instructions

1. **Correct Insertion**
   - Place the DiluCell™ in the cuvette holder with the **wide window facing the light beam**.
   - Implen devices such as the Implen OD600® and the *NanoPhotometer® product range feature directional arrows to assist with correct alignment.

   *N80 and C40, cuvette enabled devices

   ⚠ Important: DiluCell™ will not work in any other orientation.

   ⚠ Do not mix cuvette types within the same measurement series (e.g. blanks).

2. **Sample Loading**
   - The geometry of DiluCell™ supports bubble-free filling.
     It is, however, still highly recommended to visually check your samples for air bubbles after loading.

   ⚠ If bubbles are present, tap gently to eliminate them.

3. **Volume Requirement**
   Use 300 µl of sample for optimal performance.

4. **Data Handling**
   Simply multiply your absorbance values by 10 post-measurement or set your instrument to apply a 10× dilution factor.

Important Usage Notes

⚠ Single Use Only

Reuse is not recommended due to:

- High cross-contamination risk
- Bubble formation during refilling
- Inability to properly decontaminate (especially for biological samples)

⚠ Do Not Autoclave

Autoclaving may compromise the structure of the cuvette and result in inaccurate readings.

⚠ Solvent Compatibility

For chemical resistance and solvent use, contact your local Implen representative or visit www.implen.de.

Specifications

Parameter	DiluCell™ 10
Wavelength Range	340 nm – 950 nm
Optical Pathlength	1 mm (at 8.5 mm center height)
Volume Requirement	300 µl
Tolerance	±10%
Dilution Factor	1:10
Ordering Information	DC 10
Packaging	96 disposable cuvettes per pack

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