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Eppendorf μ Cuvette[®] G1.0

Instructions for use

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1 Operating instructions

1.1 Using this manual

Before using accessories for the first time, read these instructions for use and the operating manual of the device that you use the accessories with. You can find the current version of the operating manual in the available languages on the Internet at www.eppendorf.com/manuals. These instructions for use do not replace the device operating manual.

2 Safety

2.1 Intended use

The Eppendorf μ Cuvette G1.0 is used in molecular biology, biochemistry and cell biology research labs. The Eppendorf μ Cuvette G1.0 is used for photometric analysis of biomolecules in aqueous solutions. The Eppendorf μ Cuvette G1.0 is only intended for use in an Eppendorf BioPhotometer or Eppendorf BioSpectrometer.

The Eppendorf μ Cuvette G1.0 is exclusively intended for use indoors.

2.2 User profile

The device and accessories may only be operated by trained and skilled personnel.

Before using the device, read the operating manual carefully and familiarize yourself with the device's mode of operation.

2.3 Warnings for intended use



WARNING! Damage to health due to infectious liquids and pathogenic germs.

- ▶ When handling infectious liquids and pathogenic germs, observe the national regulations, the biological security level of your laboratory, the material safety data sheets, and the manufacturer's application notes.
 - ▶ Wear your personal protective equipment.
 - ▶ For comprehensive regulations about handling germs or biological material of risk group II or higher, please refer to the "Laboratory Biosafety Manual" (source: World Health Organization, Laboratory Biosafety Manual, in its respectively current valid version).
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3 Product description

3.1 Features

The Eppendorf μ Cuvette G1.0 enables the photometric analysis of biomolecules in aqueous solutions. Generally, high-concentration samples can be analyzed without being diluted first.

The Eppendorf μ Cuvette G1.0 is suitable for volumes of 1.5 μ L to 10 μ L. The reusable cuvette is easy to clean because the sample volume is precisely positioned on a level surface.

4 Operation

4.1 Pipetting samples on the sample carrier

Prerequisites

The sample carriers are free of dust, fingerprints and scratches.



NOTICE! Faulty measured values due to contamination.

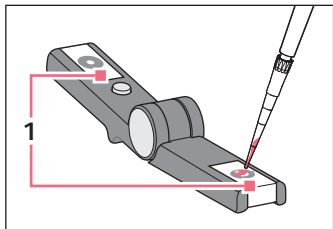
- ▶ Do not touch the sample carriers.
- ▶ Do not wear powdered gloves when working with the cuvette.
- ▶ Use lint-free cloths for cleaning.



NOTICE! Damage to the sample carrier coating.

Strong bases, strong acids, peroxide solutions and peroxide gases attack the hydrophobic coating on the sample carriers.

- ▶ Do not use strong bases, strong acids, or solutions or gases that contain peroxide.



1. Pipette the sample in the middle of the marking on the sample carrier ①.
2. Fold the cuvette together.
3. Before measuring, check to see if the sample wets both of the sample carriers on the folded cuvette.



Correct measuring results can only be achieved if the sample creates a liquid column which matches the optical path length of the cuvette (= 1 mm distance between the two sample carriers).

Tab. 1: Minimum volume

	Eppendorf BioPhotometer, Eppendorf BioPhotometer plus	Eppendorf BioSpectrometer, all versions Eppendorf BioPhotometer D30
Aqueous samples	2 μ L	1.5 μ L
Samples containing protein	4 μ L	3 μ L
Samples containing detergents	Not suitable	Not suitable

4.2 Inserting the cuvette

Prerequisites

- The measuring volume in the cuvette is sufficient. The liquid column will be created. The sample wets both sample carriers on the folded cuvette. Observe the minimum volume.
- The measuring solution is free of particles and bubbles.
- The photometer cuvette shaft is free of particles, dust and liquid.



NOTICE! Faulty measured values due to incorrect orientation of the cuvette.

On one side, the cuvette is labeled with "Eppendorf". On the opposite side there is a slight elevation serving as a positioning aid.

- ▶ Always insert the cuvette in the same direction in a series of measurements. Do not rotate the cuvette 180° during a series of measurements.



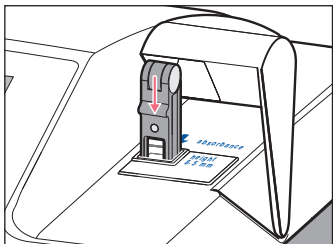
NOTICE! Material damage due to mechanical damage.

- If they are dropped or set down roughly, the sample carriers may be damaged or the cuvette may be bent.
 - Mechanical damage can lead to incorrect measured values.
- ▶ Handle the cuvette just as carefully as a quartz glass cuvette.
 - ▶ Do not drop the cuvette.
 - ▶ Store the cuvette in the supplied box.



Background correction of samples with low absorption values

Measure samples with low absorption values (< 0.5 A) in the UV range with background correction.



1. Position the cuvette so the sample carrier points toward the light path.
2. When inserting the cuvette, press it completely to the bottom against the slight resistance.
3. Set the parameter for the optical path length of the cuvette in the BioSpectrometer/BioPhotometer: 1 mm.

4.3 Removing the sample

Required equipment

- Lint-free cloths
- Deionized water

- ▶ Make sure that the sample, and all residue, is fully removed after each measurement.
- ▶ First, wipe the sample carrier with a damp cloth, and then with a dry cloth.

For more thorough cleaning, e.g., if there are fingerprints on the cuvette, follow the instructions given in the chapter "Cleaning".

5 Maintenance

5.1 Cleaning



NOTICE! Damage due to acetone.

- Acetone damages the sample carrier coating.
 - If acetone is used for cleaning, the sample carriers can become loose and fall out.
- ▶ Do not use acetone for cleaning.

Auxiliary equipment

- Lint-free cloths
 - Ethanol 70%
 - Deionized water
 - Cuvette cleaning agent (e.g., Hellmanex III, Extran)
 - Lab cleaner with sodium hypochlorite (6%)
- ▶ Clean the cuvette with deionized water after each measurement.
- ▶ To remove residue, e.g., fingerprints, wipe the cuvette with a cloth soaked in ethanol.
- ▶ To remove stubborn residue, clean the cuvette with Hellmanex (2%), Extran (2%) or a lab cleaner with sodium hypochlorite (6%).

- ▶ Wipe the cuvette with ethanol to accelerate the drying process. Then dry the cuvette with a lint-free cloth.

The sample carrier glass must be clear and free of streaks.

- ❗ Regular use of sodium hypochlorite lightens the coating on the sample carrier over a long period of time. This does not affect the cuvette's functionality.
 - ▶ Do not place the cuvette in cleaning agent.
 - ▶ Do not autoclave the cuvette.

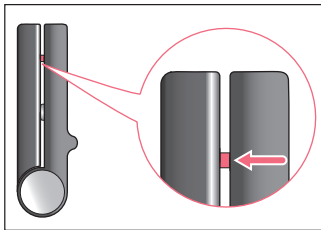
5.2 Disinfection/decontamination



WARNING! Risk to health from contaminated accessories.

1. Follow the instructions in the decontamination certificate. You can find it as a PDF file on our website (www.eppendorf.com/decontamination).
 2. Decontaminate all the parts you want to dispatch.
 3. Include the fully completed decontamination certificate for returned goods in the packing.
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- ▶ Select a disinfection method complying with the statutory rules and regulations for your area of application. Use e.g. alcohol (ethanol, isopropanol) or alcohol-containing disinfectants.

5.3 Checking the sample carrier



1. Pipette 3 μ L demineralized water in the middle of the marking on the sample carrier.
2. Fold the cuvette together.
3. Check the gap between the sample carriers.
A liquid column must be formed between the two sample carriers.

6 Troubleshooting

6.1 Error search

Problem	Cause	Solution
The cuvette cannot be fully inserted into the device.	<ul style="list-style-type: none"> The cuvette is inserted incorrectly. 	<ul style="list-style-type: none"> Insert the cuvette so that the sample carriers point downward.
Measured values are imprecise.	<ul style="list-style-type: none"> The sample carrier is contaminated. 	<ul style="list-style-type: none"> Clean the sample carrier.
	<ul style="list-style-type: none"> Bubbles or contamination in the measuring solution. 	<ul style="list-style-type: none"> Use bubble-free measuring solution. Conduct a measurement with background correction.
	<ul style="list-style-type: none"> The sample does not form a sufficient liquid column. 	<ul style="list-style-type: none"> Use the minimum volume required for the measurement. Clean the sample carrier. If no liquid column forms despite thorough cleaning, please consult with your local Eppendorf partner.
Measuring results are not correct.	<ul style="list-style-type: none"> The cuvette was inserted in the wrong direction during the series of measurements. 	<ul style="list-style-type: none"> Insert the cuvette for blank measurement and sample measurement into the device in the same direction. The cuvette may not be rotated 180°.
	<ul style="list-style-type: none"> Incorrect value for the optical path length of the cuvette during the concentration calculations. 	<ul style="list-style-type: none"> Set the parameter for the optical path length of the cuvette correctly.
	<ul style="list-style-type: none"> Coating of the sample carrier is compromised. 	<ul style="list-style-type: none"> Clean the sample carrier. If no liquid column forms despite thorough cleaning, please consult with your local Eppendorf partner.
No measured values.	<ul style="list-style-type: none"> Sample carrier for blank measurement contaminated. 	<ul style="list-style-type: none"> Clean the sample carrier. Repeat the blank measurement.
	<ul style="list-style-type: none"> Direction of the cuvette incorrect during the blank measurement. 	<ul style="list-style-type: none"> Insert the cuvette correctly. Repeat the blank measurement.
Cuvette blank too high.	<ul style="list-style-type: none"> The cuvette is inserted incorrectly (rotated 90°). 	<ul style="list-style-type: none"> Position the sample carrier toward the light path.

7 Transport, storage and disposal

7.1 Transport

- ▶ Use the original packing for transport.

	Air temperature	Relative humidity	Atmospheric pressure
General transport	-25 °C – 60 °C	10 % – 95 %	30 kPa – 106 kPa
Air freight	-40 °C – 55 °C	10 % – 95 %	30 kPa – 106 kPa

7.2 Storage

- ▶ In the lab, always store the cuvette in the storage box.

	Air temperature	Relative humidity	Atmospheric pressure
In transport packaging	-25 °C – 55 °C	25 % – 75 %	70 kPa – 106 kPa

8 Technical data

8.1 Ambient conditions

Ambience	Only for use indoors.
Ambient temperature	15 °C – 35 °C
Relative humidity	10 % – 75 %, non-condensing.
Atmospheric pressure	79.5 kPa – 106 kPa

8.2 Weight/dimensions

Dimensions	Width: 12.5 mm (0.49 in) Depth: 12.5 mm (0.49 in) Height: 48.0 mm (1.89 in)
Weight	18 g (0.04 lb)

8.3 Photometric properties

Optical path length	1 mm (\pm 0.03 mm)
Light path height	8.5 mm
Wavelength range	180 nm – 2000 nm
DNA Detection Limit	2.5 ng/ μ L (= 0.005 A)*; 25 ng/ μ L (= 0.05 A)
DNA maximum concentration	1 500 ng/ μ L (= 3.0 A)
Cuvette blank	\leq 0.1 A at 230 nm \leq 0.05 A at 260 nm

* performance in accordance with specifications of BioPhotometer/BioSpectrometer

Ordering information

Eppendorf μ Cuvette® G1.0
English (EN)

8.4 Resistance to chemicals

Not resistant to acetone, strong acids, strong bases, peroxide solutions and peroxide gases.

Resistant to:

- Ethanol 70 %
- Isopropanol 70 %
- Sodium hypochlorite 6 %
- Biocidal ZF
- COUNT-OFF Liquid Concentrate 2 %
- COUNT-OFF Surface Cleaner
- Dismozon pur (peroxide-based) 4 %
- DNA Away
- DNA-ExitusPlus
- Extran 2 %
- Hellmanex III 2 %
- Hexaquart S (QAV-based) 5 %
- Korsolex basic (aldehyde-based) 5 %
- Meliseptol (alcohol-based)
- RNase Away
- RNase-ExitusPlus

9 Ordering information

Order no. (International)	Order no. (North America)	Description
6138 000.018	6138000018	Eppendorf μCuvette G1.0 Eppendorf microvolume measuring cell for Eppendorf BioPhotometer and BioSpectrometer
6133 000.001	–	Eppendorf BioPhotometer D30 230 V/50 – 60 Hz, mains/power plug Europe, more types of mains/power connection available
6133 000.010	6133000010	120 V/50 – 60 Hz, mains/power plug North America
6135 000.009	–	Eppendorf BioSpectrometer basic 230 V/50 – 60 Hz, mains/power plug Europe, more types of mains/power connection available
6135 000.017	6135000017	120 V/50 – 60 Hz, mains/power plug North America
6136 000.002	–	Eppendorf BioSpectrometer kinetic 230 V/50-60 Hz, 230 V/50 – 60 Hz, mains/power plug Europe, more types of mains/power connection available
6136 000.010	6136000010	120 V/50-60 Hz, mains/power plug North America
6137 000.006	–	Eppendorf BioSpectrometer fluorescence 230 V/50-60 Hz, 230 V/50 – 60 Hz, mains/power plug Europe, more types of mains/power connection available
6137 000.014	6137000014	120 V/50-60 Hz, mains/power plug North America

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