



Instruction for Use

TPP PCV (Packed Cell Volume) tube

TPP "easy read" Measuring Device



The TPP PCV tube, in combination with the "easy read" measuring device, enables rapid and straightforward biomass measurement in cell culture, microbiology, and fungal and yeast suspension cultures. A centrifuge equipped with a swing-out rotor is required.

The TPP PCV tube is for single use only. Re-use disclaims all warranties.

The TPP "easy read" measuring device is re-usable.

Safety instructions

- **Handling and Safety**
Handling of biological materials shall be performed in full compliance with all applicable national and international regulations. Activities must conform to the laboratory's assigned biological safety level, the relevant Safety Data Sheets (SDS), and the manufacturer's Instructions for Use (IFU).
Appropriate personal protective equipment (PPE) should be always worn during handling.
- **Risk of Contamination**
All operations shall be conducted in accordance with aseptic techniques and established Good Laboratory Practices (GLP). Packaging shall be opened immediately prior to use. Only products that are visually intact and free from defects shall be utilized. Products exhibiting visible damage, contamination, or any other irregularities shall be disposed of in accordance with applicable regulations.
- **Storage**
TPP products shall be stored under the following conditions:
 - Temperature: 10 °C to 30 °C (50 °F to 86 °F).
 - Light exposure: Products shall be protected from direct ultraviolet (UV) radiation.
 - Relative humidity: ≤ 60 %, with a recommended control range of 50 – 60 %.Storage conditions shall be monitored and recorded to ensure compliance with these requirements. Any deviations shall be documented, evaluated, and managed in accordance with the applicable quality.

Instructions TPP PCV Tube

- Check the expiry date (EXP) on the label and packaging. Use only products with a valid EXP.
- Open the packaging and remove the product.
- Transfer a sample of 100 - 1000 µL of a mixed cell suspension into the PCV cell measuring tube.
- Close the tube with the cap # 87008 if necessary.
- Centrifuge the tube for 1 minute at 2'500 x g in a swing-out rotor for 1.5 | 2 mL vessels.
- Read the volume of the cell pellet as described in the TPP "easy read" measuring instrument instructions.
- Discard the PCV tube.

Instruction "easy read" Measuring Device

- After centrifugation, insert the PCV tube (Fig. 1) ① into the opening provided in the "easy read" after centrifugation.
- Move the magnifying glass (Fig. 1) ③ until the height of the cell pellet in the capillary is equal to the cross.
- Read the cell pellet volume in μL with the "easy read" measuring device.

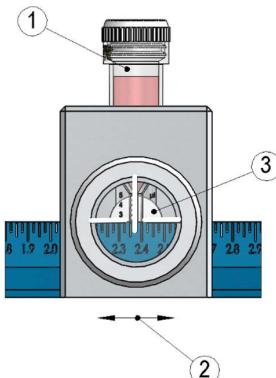


Figure 1. Magnifying glass

Calculation PCV (%) value

- The measured volume is expressed in % of the volume of the transferred suspension sample. It corresponds to the total biomass of the culture.

$$PCV(\%) = \frac{\text{volume cell pellet}}{\text{volume sample}} \times 100$$

Cleaning and Disinfection

"easy read" Measuring Device – Ruler

- Wipe the surface with a soft cloth lightly moistened with a neutral detergent to remove stains.
- Then clean with a cloth damp with lukewarm water. Avoid touching the magnifier during cleaning.
- Do not use abrasive cleaning agents, metal brushes, or cleaners containing halogens or chlorides, as these may cause surface damage or corrosion.
- For disinfection, TPP recommends the use of 70% ethanol.



"easy read" Measuring Device - Magnifying Lens

- Use compressed air to remove dust and dirt.
- Do not wipe the lens dry, as dust particles can scratch the surface.
- Never use paper towels or laboratory tissues. They have coarse fibers that can scratch the lens.
- To remove water-soluble dirt, moisten a fresh piece of lens paper or a cotton swab with distilled water. Gently wipe the lens in circular motions from the center outward to avoid spreading dirt.
- To remove oily or greasy residues, moisten a new piece of lens paper or cotton swab with a small amount of 70 % ethanol or lens cleaner. Wipe gently in circular motions from the center outward.

Allow the "easy read" to dry completely after cleaning/disinfection. Store the device in a dust-free and dry environment.

General Handling and Limitations

- Direct measurement is possible even at high cell densities. Sample dilution is not required. Instead, a proportional reduction of the selected sample volume is sufficient to achieve accurate results.
- Please note that the PCV method determines the total volume of the cell mass. It does not provide direct information regarding the cell viability (ratio of living to dead cells) within the culture.
- The cell pellet is packed tightly within the capillary during centrifugation. Due to the design of the measuring device, the cell pellet cannot be removed from the capillary once measured.
- Because of the small diameter of the PCV capillary, biomass determination is only conditionally suitable for algae and ciliates.

Technical Data

PCV Tube

Component	Material
Screw Cap	Polyethylene (PE)
PCV with or without graduation	Polystyrene (PS)

Measurements	87005	87007	87008 (cap)
Volume graduation μ L	0.1 - 0.5	---	---
Length mm	43	43	--
Diameter mm	10.5	10.5	13.5
Max. RCF x g	2'500	2'500	2'500



Centrifuges and Rotor*

Supplier	Centrifuge	Rotor
Sigma	1-14/1-14K	11128
Eppendorf	5430/5430 R	S-24-11-AT
Herolab	MicroCen M/MicroCen MR	TS 24.2

* The information provided makes no representation or warranty regarding completeness, accuracy, or timeliness.

“easy read”

Component	Material
Ruler	Aluminum
Magnifying lens	Glass

Measurements	87010
Volume graduation μ L	0.0 – 5.0
Length x width x height mm	320 x 15 x 13.5
Magnifying lens: Length x width x height mm	30 x 33 x 38

Additional Information

Instructions for use, chemical resistance lists, and quality certificates for individual products can be downloaded from the TPP website at www.tpp.ch.

Disclaimer

TPP products are intended for Research Use Only (RUO) and are not approved for clinical, diagnostic, or in vitro fertilization (IVF) applications. The full Terms & Conditions, including limitations of warranty and liability, intended use, and reseller obligations, are available at:
https://www.tpp.ch/page/qualitaets_sicherung/index.php

Distributors who purchase and distribute TPP products acknowledge and agree to these Terms & Conditions and the associated disclaimer.

Literature

1. Stettler, M., Jaccard, N., Hacker, D., De Jesus, M. Wurm, F. M., Jordan, M. (2006): New disposable tubes for rapid and precise biomass assessment for suspension cultures of mammalian cells. *Biotechnol. Bioeng.* 95 (6): 1228–1233.
2. Wurm, F., Tanner, R., Jordan, M. (2008) Eine neue Methode zur Bestimmung von Biomasse in der Zellkultur. *BioSpektrum* 05.08 508-509