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Instruction for Use
TPP Tissue Culture Dish

TPP tissue culture dishes are designed for manual cell and tissue cultivation. The integrated circumferential gripping ring ensures a secure and easy grip of the entire unit (dish and lid). Only the growth surface has been opto-mechanically activated to ensure optimal cell adhesion and improved cell growth. This activation promotes the efficient cultivation of adherent cells and thereby supports the performance of accurate and reproducible experiments.

For enhanced convenience during observation, the dish includes an orientation guide integrated into the base: numerical markers (3, 6, 9, and 12) are positioned according to a standard clock system, allowing for easy location tracking and documentation during microscopy (Fig. 1).

Figure 1. Numerical markers

The TPP tissue culture dish is for single use only. Re-use disclaims all warranties.

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.

Instruction

- Check the expiration date (EXP) on the label and packaging. Only use products with a valid EXP date.
- Before use, verify that the packaging is intact, as the consumable is only considered sterile if the packaging is undamaged.
- Open the packaging in a sterile environment and remove a complete system (dish + lid) product.
- Lift the lid and fill the chamber with medium and inoculum according to standard laboratory procedures. Ensure the optimal fill volume.
- Avoid touching the treated bottom with sharp objects.
- Ensure the lid is properly seated on the dish to minimize the risk of contamination.
- During seeding, media changes, subculturing, and other handling steps, open the lid only to approximately 45° to minimize the risk of contamination (Fig. 2).

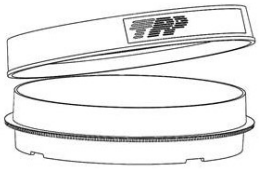

Figure 2. 45° open

- Use the labeling fields for sample identification.
- Before routine use, perform a test run under the selected experimental conditions to verify product suitability for the intended application.

Optimization of Adherent Cell Growth

To achieve optimal proliferation of adherent cells on the surface, observe the following guidelines:

- Cells must be fully and gently resuspended to obtain a true single-cell suspension. Residual aggregates lead to heterogeneous settling and nonuniform attachment.
- Prevention of foam formation: Foam should be minimized during resuspension and seeding, as protein denaturation and trapped air bubbles can impair cell viability and gas exchange.
- Immediately after seeding, the culture vessel should be gently rocked in an orthogonal (cross-shaped) pattern to ensure homogeneous distribution of cells across the growth surface and to prevent central or peripheral accumulation (“bullseye effect”).
- The seeding density must be selected according to cell line specific recommendations. Excessively high densities accelerate contact inhibition, increase metabolic stress, and promote overcrowding artifacts.
- Incubator shelves must be precisely leveled to ensure uniform medium depth across the growth area. Tilted surfaces promote media pooling and cause heterogeneous attachment.
- Follow the vessel’s specified fill volume. Too little medium increases meniscus effects, leading to cell accumulation at the edges. Adjust medium volume and culture duration according to the specific requirements of the cell line.
  Use 0.2–0.5 mL of medium per cm² of growth surface, corresponding to a medium height of approximately 2–5 mm [1]. Medium height, and therefore total volume, is a key factor for oxygen supply and influences the Oxygen Transfer Rate (OTR) (Gstraunthaler et al., 1999).
- Vibrations in or around the incubator must be avoided, particularly during the initial attachment period, to maintain reproducible attachment patterns.

- Cultures shall be maintained under controlled environmental conditions (temperature, humidity, and CO_2 concentration). Maintenance of high relative humidity is critical to prevent evaporative loss, which induces a detrimental increase in medium osmolarity.

Sub-Zero Storage

- The TPP tissue culture dish is not suited for sub-zero storage. Polystyrene (PS) exhibits significantly increased brittleness at temperatures below 0 °C (32 °F). Storage of PS products below this temperature shall not be performed, as the material is prone to spontaneous cracking and shattering, which may result in product failure and potential safety hazards.

General Handling and Limitations

- Avoid exposing the yellow labeling area to 90 % alcohol in combination with mechanical stress (e.g., rubbing or wiping), as this may cause the ink to dissolve or smear.
- The circumferential grip ring allows a secure grip of the cell culture dish and thus avoids unintentional lifting of the lid (risk of contamination).
- The stacking rim ensures stable and secure stacking of multiple TPP cell culture dishes.
- Centrifugation of the dish is not recommended.

Accessories

- Tissue Spatula (Lifter) #99010
- Tissue Scraper #99002, #99003, #99004

For more information, see IFU: Tissue Scraper and Spatula (Lifter).

Technical Data

Component	Material
Dish	Polystyrene (PS)
Lid	Polystyrene (PS)

Measurements	93040	93060	93100	93150
Outside diameter mm	40	60	96	146
Height mm	11	16	21	21
Inside diameter mm	34	53	87	137
Volume recom. mL [1]	1.8 – 2.7	4.5 – 6.6	12 – 18	29 – 44
Growth surface cm^2	9.2	22.1	60.1	147.8

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] Amanda Capes-Davis, R. Ian Freshney (2010) Freshney's Culture of Animal Cells: A Manual of Basic Technique and Specialized Applications (8th Ed.) - Wiley (p.180)