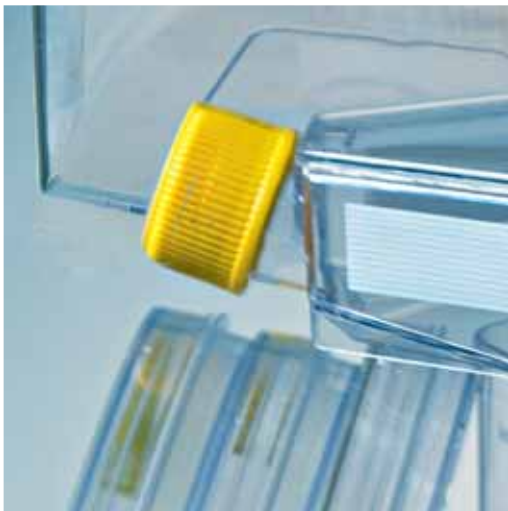




Tissue Culture and Laboratory Technology

Sales Brochure 2010/2011



home of tissue culture







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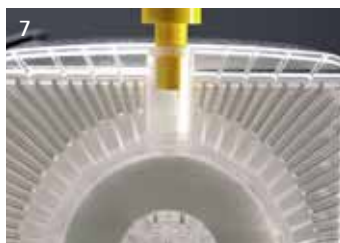
TPP Techno Plastic Products AG



TPP products are developed and manufactured conforming to ISO 9001 norms.
They are available worldwide through the TPP dealer net.



- 1 Construction
- 2 Production
- 3 Quality control
- 4 Automated guided vehicle system
- 5 Silos for plastic granulate
- 6 Storage house of finished goods
- 7 Product detail
- 8 Administration





Dear reader

In 1966 my father Max Tanner founded the family business TPP in Trasadingen. Being a small shop in the beginning, TPP developed fast due to the flexibility and proximity to the user and also because there was dependence on word and deed. With time it became an internationally accepted manufacturer.

Since I have taken over the corporate management from my father, I see myself as conductor of the TPP orchestra. Every voice of each player is important to me.

This means that I am in a regular contact with all employees and involved in the daily business. My personal engagement however is gathering, combining and realising new product ideas, improvements on existing products and realizing highest quality aspects.

There are highest expectations laid on each one of us. I am proud that I can personally assure you that all at TPP are giving their best to fulfil these expectations.

Therefore everybody here in Trasadingen as well as with the TPP dealers worldwide is at your disposal every day.

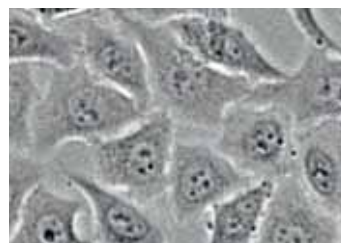
By this I give you the guarantee, that you as a user of TPP products receive the best support for your successful work.

We are happy to work for and with you.

*Rolf Tanner and the
TPP Techno Plastic Products AG team*



Worldwide content TPP product users.



Tissue Culture Flasks 25 – 300 cm²



The TPP tissue culture flasks are subject to the following quality aspects:

- uniform even surface of the growth area.
- crystal clear transparency.
- stable, slip-free stacking of several flasks (picture 2, following page).
- bilateral marking area.
- accurate volume scale for optic control of the filling volume.

For optimum tissue growth, the growth area is treated by a method developed by TPP. This enhances cell adhesion and cell growth.

The geometry of the neck guarantees optimal access of TPP pipettes, TPP scrappers and the TPP spatula.

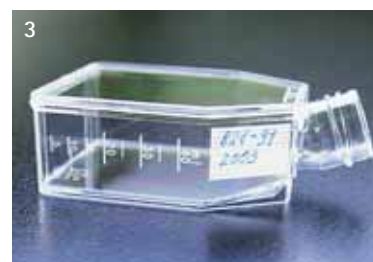
The filter screw caps feature a hydrophobic PTFE membrane with a pore size of 0.22 µm. This offers protection with optimal gas exchange at the same time.

A click and the "VENT" screw cap is in the "VENT" position with defined aeration. The clicked-in "VENT" position is recognized by means of a slightly raised rectangle found at 12 o'clock (picture 1). When the "VENT" screw cap is turned clockwise 90° the flask is gas-tight closed (picture 2).














1 Defined "VENT" aeration.

2 Closed gas tight.



- 1 Excellent access of pipettes, tissue scrapers and tissue spatula from TPP.
- 2 Secure and stable stacking of several flasks.
- 3 Marking area with lines to allow your identification.

Type	Product-No.	Growth Surface	Version	Volume	Dimensions	Material	Qty / Bag	Qty / Case
	90025	25 cm ²	"VENT"	60 ml	90 x 50 x 25 mm	PS	10	360
	90026	25 cm ²	Filter	60 ml	90 x 50 x 25 mm	PS	10	360
	90075	75 cm ²	"VENT"	270 ml	150 x 85 x 35 mm	PS	5	100
	90076	75 cm ²	Filter	270 ml	150 x 85 x 35 mm	PS	5	100
	90150	150 cm ²	"VENT"	690 ml	205 x 120 x 45 mm	PS	3	36
	90151	150 cm ²	Filter	690 ml	205 x 120 x 45 mm	PS	3	36
	90300	300 cm ²	"VENT"	1360 ml	270 x 170 x 45 mm	PS	3	18
	90301	300 cm ²	Filter	1360 ml	270 x 170 x 45 mm	PS	3	18

Type	Product-No.	Version	Dimensions	Material	Qty / Bag	Qty / Case
	90930	"VENT" 150/300	Ø 38 x 24 mm	PE	1	70
	90931	Filter 150/300	Ø 38 x 24 mm	PE	1	70
	90936	Filter 150/300	Ø 38 x 24 mm	PE	20	200



4 "VENT" and filter screw caps.

5 TPP filter screw cap have a high quality hydrophobic PTFE membrane, pore size 0.22 µm welded in. We employ our own bonding process to join the filter to the plastic with optimum results.

Tissue Culture Flasks with reclosable lid or peel-off foil



The tissue culture flask with reclosable lid offers a wide usage spectrum. The features of this unique flask are:

- a lid, that can be opened and reclosed liquid-tight.
- possibility of total access from above without hindrance (picture 3).
- stable, slip-free stacking of several flasks (picture 1).
- partial barriers with additional safety zone.

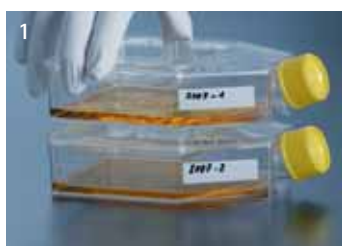
The tissue culture flask with the peel-off foil made of a multilayer foil material has proven its worth. The foil is peeled off before access to the cells to be cultivated (thereafter re-closure is no longer possible).

Both versions, whether with lid or foil, are guaranteed not to leak when filled with liquid up to 100 ml.

1 Secure stacking of several flasks.

2 Non-toxic gasket and a unique click-in system allow the lid to be fixed into any desired position.

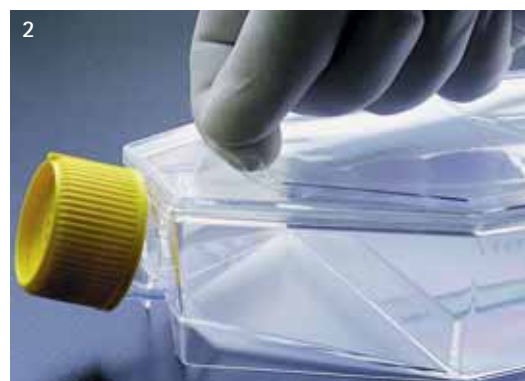
3 Free access from above.





1 Press here 2 Lift out lid

Opening and re-closing mechanism. We guarantee 100% tightness of both flasks including their connected parts when filled with liquid up to 100 ml maximum.



- 1 The TPP tissue culture flasks with convenient reclosable lid.
- 2 The toxin-free foil can be gripped and peeled off at the given flap with ease.

Type	Product-No.	Growth Surface	Version	Lid Opening	Volume	Dimensions	Material	Qty / Bag	Qty / Case
	90551	150 cm ²	peel-off foil	100 x 110 mm	200 ml	205 x 120 x 45 mm	PS	3	18
	90552	150 cm ²	lid	105 x 105 mm	200 ml	205 x 120 x 45 mm	PS	3	18
	90651	115 cm ²	peel-off foil	100 x 110 mm	200 ml	205 x 120 x 45 mm	PS	3	18
	90652	115 cm ²	lid	105 x 105 mm	200 ml	205 x 120 x 45 mm	PS	3	18



- 3 Both TPP flasks – with reclosable lid or with peel off foil – feature crystal clear transparency.

Tissue Culture Flat Tube 10 and Tissue Culture Tube 5



TPP tissue culture tubes are a special extension to the tissue culture flask product range.

The advantages of the unique tissue culture flat tube 10:

- 3-in-1 product: cultivation, examination under microscopy, centrifugation.
- 10 cm² growth area.
- large opening enables optimal access of pipettes and scrapers (picture 2).
- possibility of a visual control with inverse microscopes (picture 1, following page).
- sloped and flattened upper side results in reduced refraction.
- centrifugation in a 50 ml standard adapter at 1200 g.

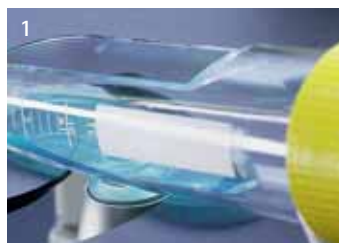
The corresponding TPP tissue culture rack fits eight tubes in a horizontal position for storage in a CO₂ incubator (picture 3, following page).

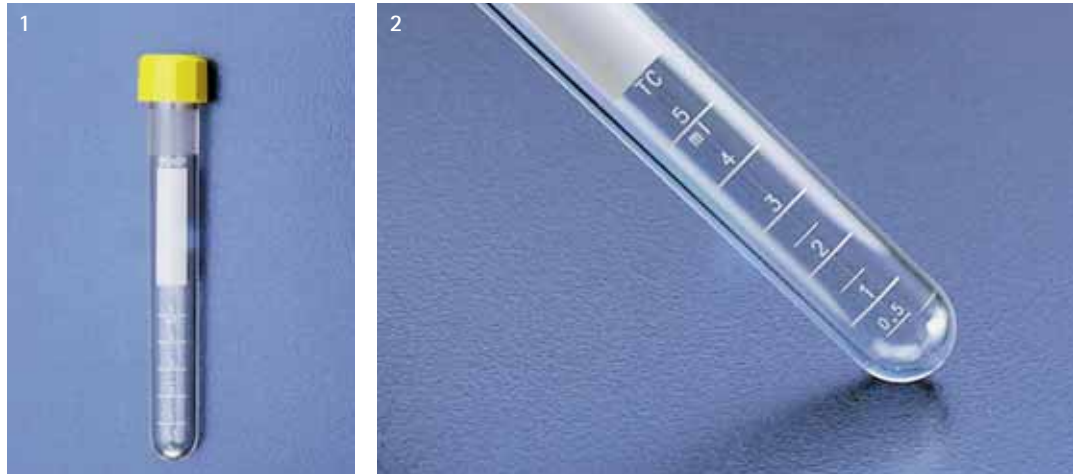
Advantages of the tissue culture tube 5:

- treated for tissue growth over a length of 50 mm.
- 20 cm² growth area.
- specially formed 10-sided comb form "VENT" screw cap with "Click" avoids inadvertent rolling and enables regaining of previous positions (picture 1, following page).
- convenient zipper bag (picture 5, following page) with laser perforations (picture 4, following page).



1 The firm horizontal stand simplifies readjustment of the microscope.

2 Cell scraper in a tissue culture flat tube 10.

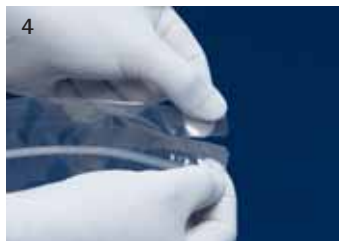




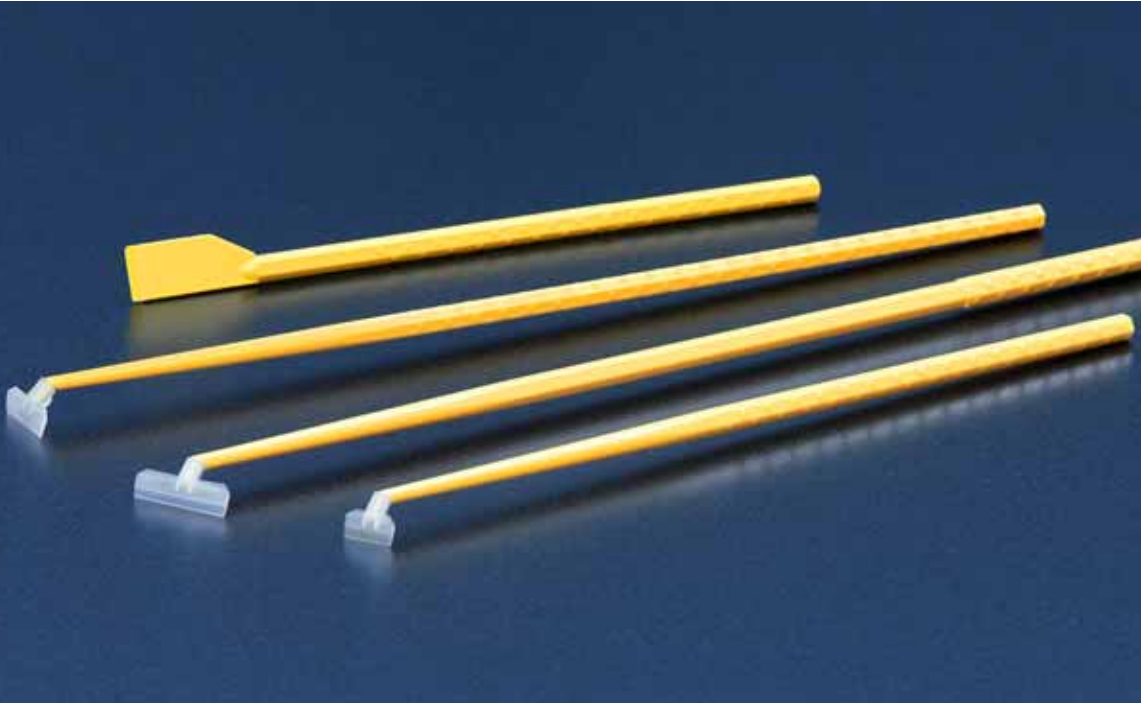
- 1 Thanks to its special "VENT" screw cap the tissue culture tube 5 does not roll.
 2 Tissue growth treatment over a length of 50 mm.

Type	Product-No.	Growth Surface	Version	Volume	max. g-Force	Dimensions	Material	Qty / Bag	Qty / Case
	91106	20 cm ²	"VENT"	5 ml	1200 g	Ø 16 x 120 mm	PS	20	800
	91253	10 cm ²	Filter	10 ml	1200 g	Ø 30 x 105 mm	PS	5	350

- 3 Tissue culture rack for tissue culture tubes.
 4 Laser perforations enable an opening of the bag without tools.
 5 Convenient reclosable zipper bag.



Cell Scrapers and Cell Spatula



The TPP cell scrapers all feature a rotating blade. With this feature, adherent cells can be efficiently lifted in culture vessels with total access to all corners.

A slight pressure on the handle and simultaneous minimal twist of the hand suffices to rotate the blade to the desired direction (picture 1).

The cell spatula features a special formed blade with sharp edges. It is mainly used with TPP tissue culture flasks with reclosable lid or peel off foil and with the large TPP tissue culture dish.

The entire product range of TPP scrapers and spatula feature small raised knobs on the handle. These knobs allow a slip free and secure grip when using rubber gloves (picture 2).

TPP cell scrapers and the TPP cell spatula come in a lint-free blister packaging and the user friendly TPP dispenser case (picture 2).

1 Changes of the blade angle require slight pressure on the handle using the forefinger, thus pushing the handle downward towards the floor of the container. Slight rotation of the handle will then cause the blade to twist in the required direction.

2 Blister packaging. Small raised knobs on the handle enable a secure grip.

3 Different blade widths.





1 Usage of cell scraper in a large TPP tissue culture dish.



2 Specially formed tip of cell spatula.

Type	Product-No.	Length	Version	Width of Blade	Material	Qty / Bag	Qty / Case
	99002	240 mm	rotating	13 mm	PP/PE	1	150
	99003	300 mm	rotating	20 mm	PP/PE	1	150
	99004	380 mm	rotating	25 mm	PP/PE	1	100
	99010	195 mm	-	14 mm	PP	1	150

Product-No.	Field of Application
99002	tissue culture flask: 25/75 cm ² , tissue culture tube: 10 cm ² , tissue culture dish: Ø 40/60 mm
99003	tissue culture flask: 75/150 cm ² , tissue culture dish: Ø 100/150 mm
99004	tissue culture flask: 300 cm ²



3 The blade of the cell scraper is made of soft material; this protects the cells.

Bioreactor 50 and Bioreactor 600



TPP bioreactors have proven their advantages in large scale screening and optimisation processes of suspension cells. The optimization of the parameters, important for the production up-scaling, can be evaluated with small amounts.

With the Bioreactor 50 (working volume 1–35 ml) and the Bioreactor 600 (working volume up to ca. 400 ml) the user can optimize production parameters or even produce

small amounts. The cultivation of suspension cells is normally performed in shakers at a temperature of 37 °C. Even with a high cell density the supply of oxygen through the openings above the gas permeable, sterile PTFE filter is sufficient.

The Bioreactor 50 fits in a standard 50 ml centrifuge rotor, the Bioreactor 600 in many 1000 ml rotors.

1 Required openings can be sealed and by this, the exchange is adjusted as per requirement. Sterility is guaranteed through the 0.22 µm filter membrane.

2 Racks with Bioreactors.



3 Gas exchange through the openings.





1 Bioreactor 50 and Bioreactor 600.

If small culture volumes are incubated over a longer period of time, the loss of water influences the growth of cells. By the closure of one or several openings above the gas permeable and sterile PTFE membrane, this water loss can be minimized (picture 1, previous page).

Type	Product-No.	Version	Volume	Dimensions	Material	Qty / Bag	Qty / Case
	87050	Filter	50 ml	Ø 30 x 115 mm	PP	20	180
	87600	Filter	600 ml	Ø 98 x 181 mm	PP	1	26
Opening	A	B	C	D	E		
87050 Bioreactor 50	0.4 mm	0.6 mm	1.0 mm	1.5 mm	2.0 mm		
87600 Bioreactor 600	10 openings with size 4 mm						



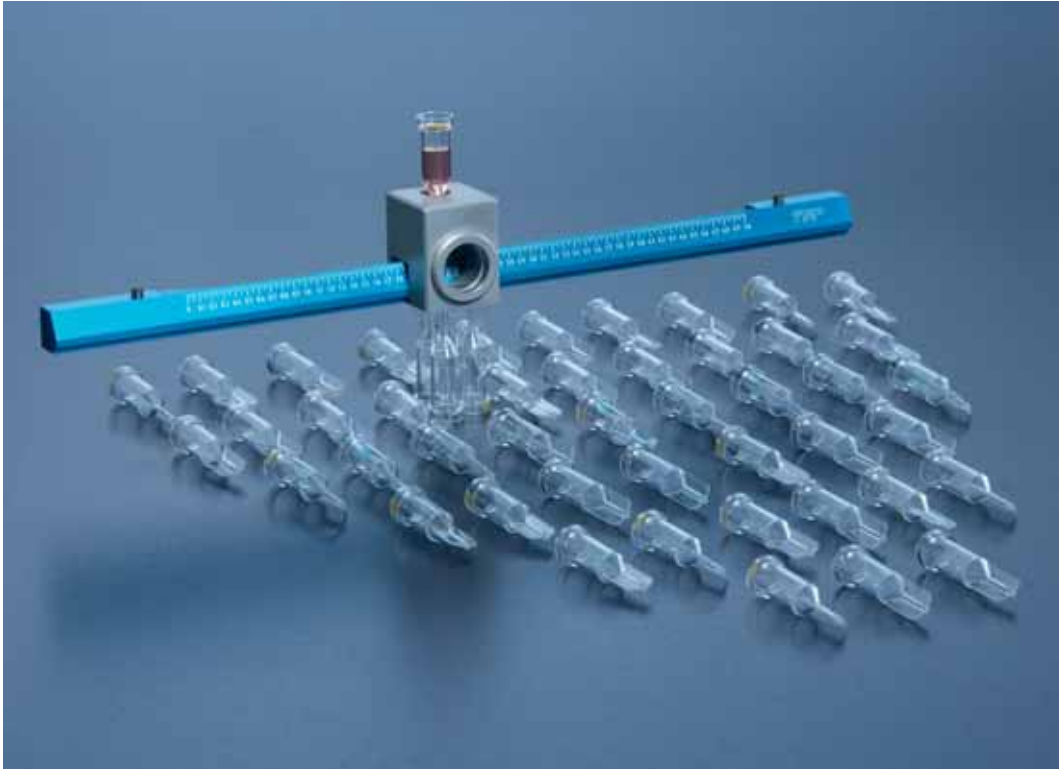
Developers and users of shaken bioreactors find comprehensive information on these internet pages.

Troubleshooting for shaken bioreactor users is offered by "Dr. Shaker", i. e. specialists from sciences and industry.

The "Forum Shaking Technology" is a cooperation of competent partner companies in the field of laboratory technology and biotechnology.

The free publication database offers a broad selection of the scientific papers of shaken cultures in micro titre plates up to 1000l reactors.

PCV Packed Cell Volume Tube and "easy read" Measuring Device

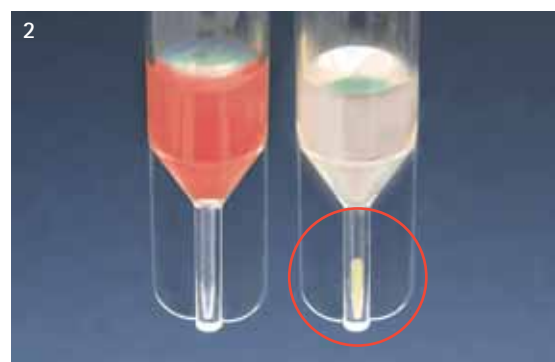


The PCV tube enables a quick and reproducible measuring technique of the cell volume. This method is ideal for the monitoring of the tissue growth (cell mass).

After a short centrifugation in a micro centrifuge, the cell volume forms a pellet in the PCV capillary.

With the "easy read" measuring device, developed by TPP, the volume can be read (picture 2).

If during a production process many parameters need to be optimized, many samples accumulate at the same time. Here is a quick analysis with the PCV tube and the read out process with "easy read" the method of choice.



1 PCV tube.
2 Left PCV before / right PCV after the centrifugation.



A short centrifugation step (1 minute at 2500 g) is sufficient to form a pellet in the calibrated capillary. There the pellet can be read with the "easy read" measuring device.





With a very high density of the cells, the samples must not be diluted; simply reduce the sample volume. Samples from the same series should be treated accordingly.

For bacteria measurement the parameters have to be adjusted, for example higher g-force, smaller volume, etc.

Micro centrifuges with swing-out rotors are preferable.

Typical protocol

1. Mix the cell suspension thoroughly in the Bioreactor.
2. Take a sample of exactly 1000 μl .
3. Transfer sample into a PCV tube.
4. Spin sample: 1 minute at 2500 g in a micro centrifuge.
5. Read volume of the pellet (cell mass) in the PCV tube with "easy read".

Type	Product-No.	Version	Volume	Dimensions	Material	Qty / Bag	Qty / Case
	87005	without cap	1 ml	\emptyset 10.5 x 43 mm	PS	50	250
	87007	neutral	1 ml	\emptyset 10.5 x 43 mm	PS	50	150
	87008	cap for PCV		\emptyset 13.5 mm	PE	50	150
	87010	"easy read" measuring device	0–5 μl		Alu	1	1

1 Easy reading with "easy read".



Serological Pipettes



The quality of the serological pipettes of TPP:

- accurate volume 1–70 ml.
- highly visible, bidirectional graduation.
- excellent optical transparency.
- colour coded cotton plugs.
- optimized form of the mouthpiece that preserves the rubber of your pipette aid.
- convenient, stackable TPP dispenser box.
- single wrapped.

The version of the 25 ml and 50 ml pipette with reservoir increases the usable volume considerably. In addition to the mentioned qualities these two pipettes feature the following:

tion to the mentioned qualities these two pipettes feature the following:

- highly drop free pipette tip (picture 1).
- slender and short form that enables ergonomic working conditions in the sterile hood.
- small outside diameter of the tube at the tip resulting in an excellent accessibility of these large pipettes even in small tissue culture flasks.








1 Small pipette tip.

2 Excellent accessibility to all corners of the TPP tissue culture flasks.





The serological pipettes with reservoir from TPP are manufactured with highest grade polystyrene. They fit in all commercially available pipette aids with rubber inserts.

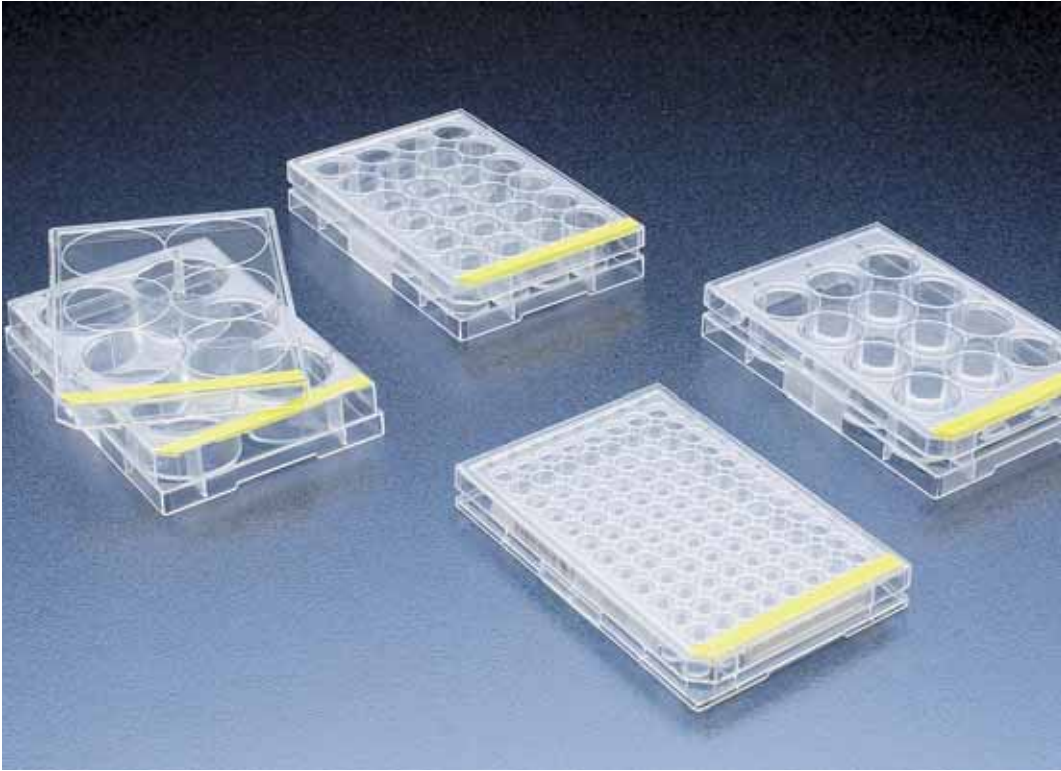
Type	Product-No.	Volume	Reservoir	Colour Code	Dimensions	Material	Volume Graduations	Qty / Case
	94001	1 ml		yellow	Ø 4.8 x 270 mm	PS	1/100 ml	400
	94002	2 ml		green	Ø 5.5 x 270 mm	PS	1/100 ml	300
	94005	5 ml		blue	Ø 9.5 x 295 mm	PS	1/10 ml	200
	94010	10 ml		orange	Ø 11.0 x 295 mm	PS	1/10 ml	200
	94024	25 ml		red	Ø 16.0 x 300 mm	PS	2/10 ml	100
	94525	25 ml	15 ml	red	Ø 13.5 x 345 mm	PS	2/10 ml	60
	94550	50 ml	20 ml	purple	Ø 18.5 x 345 mm	PS	1/10 ml	50

1 Serological pipettes in a TPP tissue culture flask with reclosable lid.

2 Lint free paper/plastic packaging.



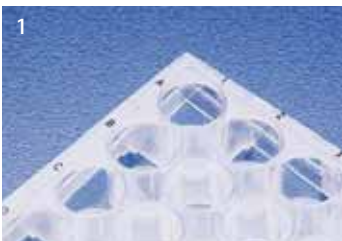
Tissue Culture Test Plates



TPP tissue culture test plates show the highest operational standards of quality:

- lid with air-venting system guarantees controlled gas exchange with low evaporation.
- sloped edge allows placement of the lid in one position only.
- yellow inscription field: yellow on yellow – match!
- growth area on spherical zone only.
- absolutely flat growth surface.
- crystal clear transparency.
- Alpha-numerical labelling of the wells.

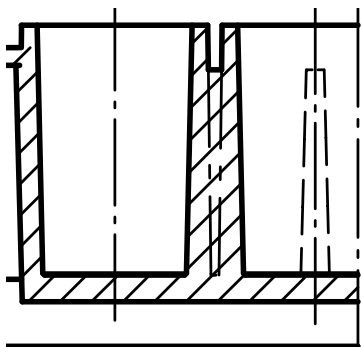
TPP tissue culture test plates with 96 wells – manufactured according to ANSI/SBS-3d-standards – are standardized with an interleaved barcode 2/5. The white base colour is embossed firmly on the test plate. A loss of identification through detachment is excluded



1 Black alpha-numerical labelling of the wells.

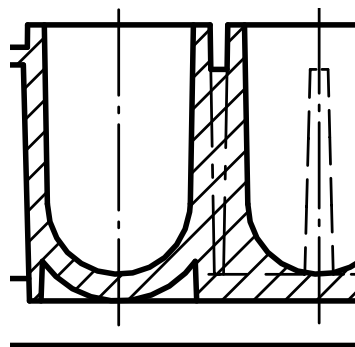
2 Yellow inscription field.

The well geometry is an important criterion with a 96 well tissue culture plate. TPP offers 2 well geometries:



F-base

- Excellent optical characteristics.
- Suitable for precise optical measurements (the measuring light is not distracted by the geometry) as well as microscopy applications (bottom reading)
- Growth area 0.335 cm².
- Working volume 0.34 ml.



U-base

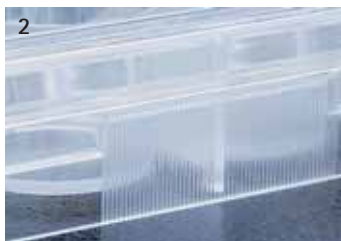
- No rims, well suited for pipetting.
- Used for agglutination tests and "+/-" evaluations.
- Growth area: 0.396 cm².
- Working volume: 0.31 ml.

Type	Product-No.	Growth Surface	Version	Volume	Internal Ø	Dimensions	Material	Qty / Bag	Qty / Case
	92006	8.960 cm ²		15.53 ml	33.78 mm	128 x 85 x 22 mm	PS	1	126
	92012	3.596 cm ²		6.30 ml	21.40 mm	128 x 85 x 22 mm	PS	1	126
	92024	1.862 cm ²		3.29 ml	15.40 mm	128 x 85 x 22 mm	PS	1	126
	92096	0.335 cm ²		0.34 ml	6.54 mm	128 x 85 x 17 mm	PS	1	162
	92097	0.396 cm ²		0.31 ml	6.54 mm	128 x 85 x 17 mm	PS	1	162
	92406	8.960 cm ²		15.53 ml	33.78 mm	128 x 85 x 22 mm	PS	4	64
	92412	3.596 cm ²		6.30 ml	21.40 mm	128 x 85 x 22 mm	PS	4	64
	92424	1.862 cm ²		3.29 ml	15.40 mm	128 x 85 x 22 mm	PS	4	64
	92696	0.335 cm ²		0.34 ml	6.54 mm	128 x 85 x 17 mm	PS	6	96
	92697	0.396 cm ²		0.31 ml	6.54 mm	128 x 85 x 17 mm	PS	6	96

1 All TPP test plates are equipped with an alpha-numerical identification mark next to each well. This simplifies the orientation during operations under the microscope.

2 Grip rills.

3 The barcode "2/5 interleaved" makes each 96 well testplate a unique plate. The 8 digit lot number combined with the 8 digit serial number can never give a repeated ID coding number.



Tissue Culture Dishes



Tissue culture dishes from TPP offer a large growth area and secure handling:

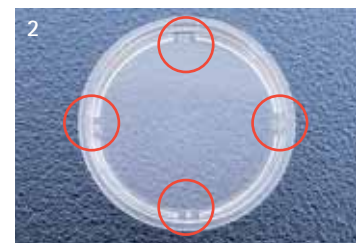
- the TPP surface treatment of the growth area optimally enhances the proliferation of the cells.
- the gripping ring: often copied, never reached!
- protruding points in the gripping ring render the dish grip secure.
- lateral yellow inscription field on the lid.
- stacking ring on the lid and corresponding on the base result in an extremely secure stacking feature.

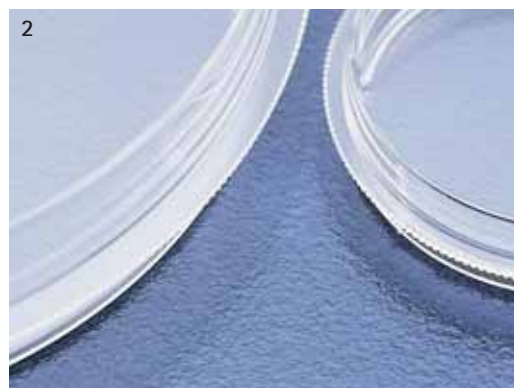
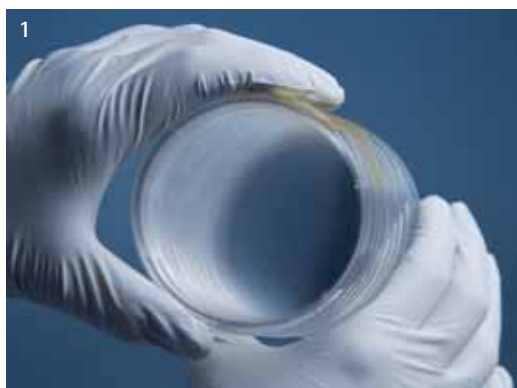
- quick orientation by the clock numbering system in the base of the dish.
- cams on the inside of the dish lid function as spacer and enable a constant movement of air and also limit condensation.

The crystal clear transparency enables a visual control of the cells in stacked dishes using transmitted light. This is the basis for documentation using microphotography.

1 Convenient peel-off bags.

2 Clock-numbering system (3, 6, 9 and 12) inlaid into the base of the dish allows identification, definition and documentation of the zones.





Tissue culture dishes are designed for manual handling. The yellow inscription field on the lid and the matt inscription field on the base enable a defined positioning of the lid. The side walls of the dish are not treated for tissue growth.

- 1 Stacked tissue culture dishes.
2 The gripping ring: often copied, never reached!

Type	Product-No.	Growth Surface	Internal Ø	Dimensions	Material	Qty / Bag	Qty / Case
○	93040	9.2 cm ²	34 mm	Ø 40 x 11 mm	PS	20	900
○	93060	22.1 cm ²	53 mm	Ø 60 x 16 mm	PS	14	840
○	93100	60.1 cm ²	87 mm	Ø 96 x 21 mm	PS	10	240
○	93150	147.8 cm ²	137 mm	Ø 146 x 21 mm	PS	5	100



- 3 Lid with yellow inscription field as well as cams on the inside of the lid.

Vacuum Filtrations "rapid"-Filtermax and Syringe Filters



The family of TPP vacuum filtration "rapid"-Filtermax stands out not just because of its quadratic form, but also its excellent product features.

The large quadratic filter surface of 49 cm² and 69 cm² respectively is 20% larger than with comparable round forms. This, plus the premium PES filter membrane, pore size of 0.22 µm, and the low protein binding capacity, results in a high flow rate.

The flask with its secure footprint eliminates the risk of encompassment of the filter unit by the vacuum tubing

(picture 3). Also the quadratic form saves valuable storage space (picture 2).

The tapered form of the neck enables large and small hands a firm and slip-free grip of the "rapid"-Filtermax system – even when wearing rubber gloves.

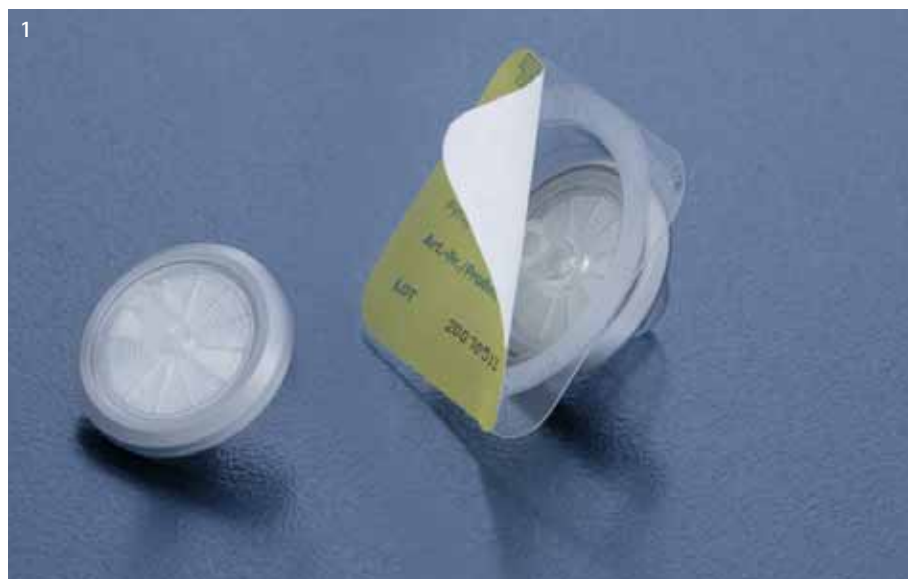
A separately packed screw cap and adapter for the vacuum connection hose with inside diameter of Ø 6–10 mm (2.36–3.94 inch) are supplied with each system (picture 1).

- 1 Filter top and flask are graduated; the units are sterile and ready to use with a pump or pressure tank.
- 2 The "rapid"-Filtermax is available in sizes 125, 250, 500 and 1000 ml. The flask can be used as medium reservoir.
- 3 The tapered form enables small and large hands a secure grip. It is recommended to fill the liquid into the filter first and then apply the vacuum.













The TPP syringe filters are intended to filter aqueous solutions. The PES filter membrane with pore size 0.22 µm or 0.45 µm exhibits a high flow rate with minimum protein binding. Thanks to the standard luer-lock connection, you can perform a filtration at high pressure with a syringe.

The outside diameter of the filter enables the syringe filter to sit stably on a 50 ml TPP centrifuge tube (picture 3).



1 The syringe filters are available in sterile blister packaging in convenient card box dispenser.

Type	Product-No.	Filter Area	Volume	Membrane Type	Dimensions	Material	Qty / Bag	Qty / Case
	99150	49 cm ²	150 ml	PES 0,22 µm	93 x 93 x 103 mm	PS/PES	1	12
	99155	49 cm ²	150 ml	PES 0,22 µm	89 x 89 x 57 mm	PS/PES	1	24
	99250	49 cm ²	250 ml	PES 0,22 µm	93 x 93 x 143 mm	PS/PES	1	12
	99255	49 cm ²	250 ml	PES 0,22 µm	89 x 89 x 75 mm	PS/PES	1	24
	99500	49 cm ²	500 ml	PES 0,22 µm	93 x 93 x 213 mm	PS/PES	1	12
	99505	49 cm ²	500 ml	PES 0,22 µm	89 x 89 x 111 mm	PS/PES	1	24
	99950	69 cm ²	1000 ml	PES 0,22 µm	111 x 111 x 285 mm	PS/PES	1	6
	99955	69 cm ²	1000 ml	PES 0,22 µm	108 x 108 x 143 mm	PS/PES	1	12
	99722	6 cm ²	-	PES 0,22 µm	33 x 27 mm	PET/PES	1	200 (5x40)
	99745	6 cm ²	-	PES 0,45 µm	33 x 27 mm	PET/PES	1	200 (5x40)



2 All vacuum filtration systems feature a GL-45 screw thread.

3 Stable fit of the syringe filter on a 50 ml centrifuge tube.

Centrifuge Tubes



The qualities of the TPP centrifuge tubes are:

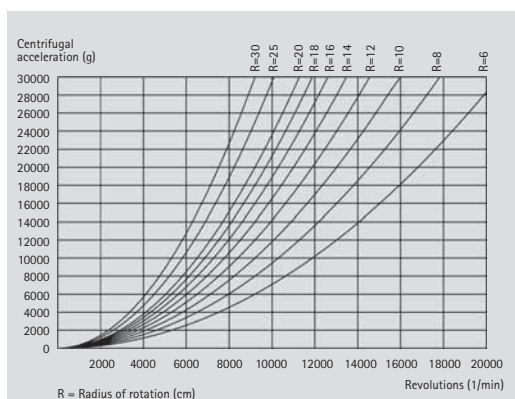
- white, fixed inscription circles on the screw caps that can be permanently marked with ball pens or other suitable means.
- caps that cannot be over-tightened
- gas and aerosol tight cap.
- graduations starting at 0.1 ml / 0.5 ml.

The TPP centrifuge tubes are manufactured on fully automatic in-line machines. TPP processes only the highest grade of raw material that fulfil the requirements of USP Class 6 and Class 1 medical devices according to directive (93/42). No additives are employed. By this we prevent leaching of substances into the valuable probes of the tubes (see page 31).

1 Lines assist easy identification marking on the white inscription field.

2 Conveniently filled racks with tubes simplify procedures.





Centrifugal Acceleration (g)

The limit on "g" is influenced by:

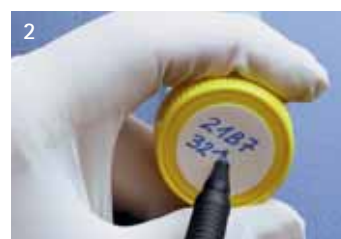
- Type of rotor (diameter).
- Speed / revolutions per minute.

The maximum on "g" depends on:

- Material of tubes
- Centrifugation probe (for ex. organic solvents)

1 Accuracy of volume graduation.

2 Identification marking on the screw caps enables specimens to be rapidly found.



Type	Product-No.	Volume	Version	Dimensions	Material	max. g-Force	Qty / Bag	Qty / Case
	91015	15 ml	conical	Ø 16.5 x 120 mm	PP	9500 g	40	800
	91016	14 ml	round	Ø 16.5 x 105 mm	PP	9500 g	40	800
	91019	13 ml	flat	Ø 16.5 x 100 mm	PP	9500 g	40	800
	91050	50 ml	conical	Ø 30.0 x 115 mm	PP	9500 g	20	360
	91051	50 ml	with rim	Ø 30.0 x 115 mm	PP	9500 g	20	320
	91115	15 ml	conical	Ø 16.5 x 120 mm	PS	1700 g	40	800
	91515	30 x 15 ml	conical	-	PP	9500 g	1	10
	91550	20 x 50 ml	conical	-	PP	9500 g	1	10



3 The fine graduation markings on the cone or base zone start at 0.1 / 0.5 ml.

4 Scale on flat centrifuge tube.

Cryo Tubes



TPP cryo tubes are used to store samples in freezers or similar low-temperature equipment.

During storage build up of stress on the product can happen. The TPP design as well as the high grade material ensures safe handling during and after the unfreezing process.

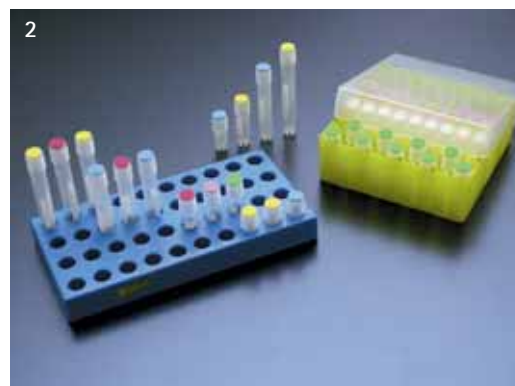
Thanks to the geometry of the external thread, TPP can abstain from using a silicone gasket, enabling secure and tight closure of the tube (picture 1).

Colour-coded inserts are available in a range of colours (picture 2). They offer convenient marking and identification of the cryo tubes.

TPP cryo tubes are supplied in convenient, puncture and tear resistant re-closable bags (picture 4, following page).

- 1 The external threading results in a smooth internal surface that eliminates undue loss of specimen material during removal.
- 2 Colour-coding inserts.





- 1 All cryo tubes are self-standing and feature a star foot.
- 2 A single-handed operation is possible using the tubes with the cryogenic rack No. 99016 with its star-shaped locking system in the grooves.

Type	Product-No.	Volume	Volume Recom.	Dimensions	Material	Colours	Qty / Bag	Qty / Case
	89012	1.2 ml	0.9 ml	Ø 12 x 37 mm	PP	-	100	800
	89020	2.0 ml	1.5 ml	Ø 12 x 48 mm	PP	-	100	800
	89040	3.8 ml	3.5 ml	Ø 12 x 75 mm	PP	-	100	400
	89050	4.5 ml	4.0 ml	Ø 12 x 90 mm	PP	-	100	400
	99020	-	-	Ø 11 x 1 mm	PP	blue, yellow, green, lilac, red, white	6 x 100	7800

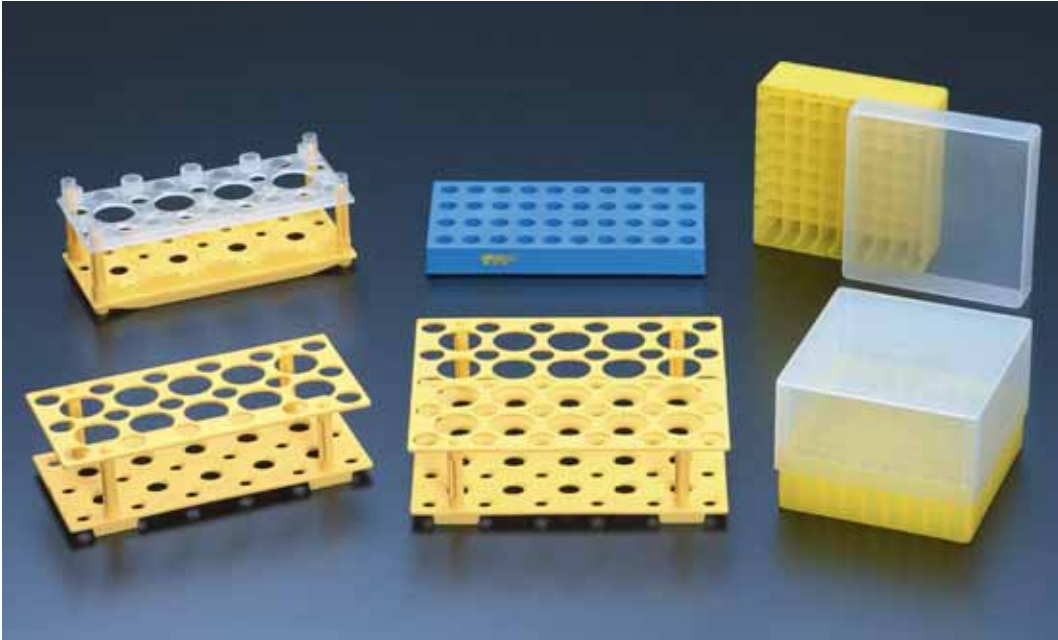
Type	Product-No.	Fitting Vials	Capacity	Dimensions	Material	Qty / Bag	Qty / Case
	99014	89040 – 89050	81 pcs.	133 x 133 x 95 mm	PP	1	10
	99015	89012 – 89020	81 pcs.	133 x 133 x 45 mm	PP	1	20
	99016	89012 – 89050	40 pcs.	100 x 200 x 25 mm	PC	1	12

Do not use cryo tubes for storage in the liquid phase but in the gas phase above the liquefied nitrogen. During storage in liquid nitrogen TPP recommends the use of additional wrapping such as welded tubes. Always use appropriate safety equipment and procedures.

- 3 Cryo tubes of TPP.
- 4 Convenient re-closable bag.



Racks and Cryo Boxes



The TPP racks feature:

- alpha-numerical inscription to identify your samples.
- a convenient shape.
- heat resistant autoclavable material.

The TPP racks with the "click" system are quickly assembled and disassembled. They show no inhibitory burrs on the insertion holes.

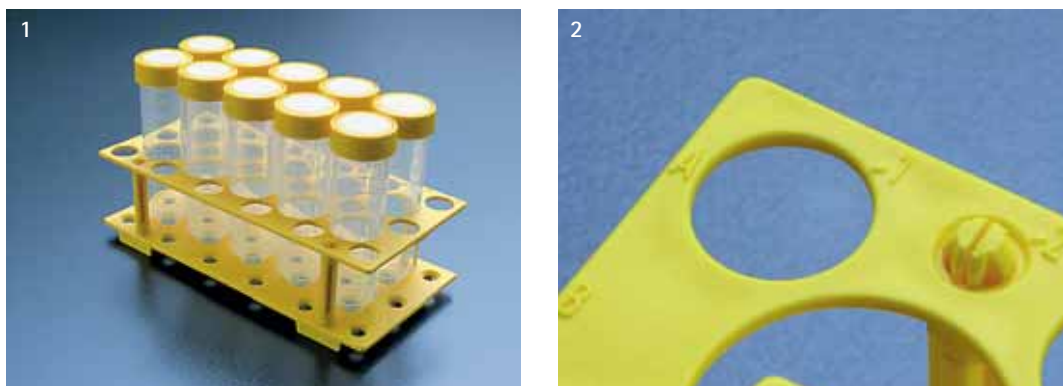
The rack for tissue culture tubes features a transparent top with a protection rim. Horizontally stored tissue culture flat tubes 10 are thus secured and sliding is prevented.

TPP cryo boxes are intended for the storage of samples in a freezer. Even after multiple usages the lids can be removed from – or replaced on – the base with ease. For cryo tubes larger than 4 ml, boxes with raised lids are available.









The cryogenic rack shows excellent non-slip properties via the standard ready-mounted rubber feet. The star-shaped insertion system in the grooves allows one hand operation when used with the star foot TPP cryo tubes.





- 1 Rack for centrifuge tubes.
- 2 The click-system allows easy assembling and disassembling of the racks.
A disassembled rack can save storage space.

Type	Product-No.	Capacity	Dimensions	Material	Qty / Bag	Qty / Case
	99014	81 x 89040 or 89050	133 x 133 x 95 mm	PP	1	10
	99015	81 x 89012 or 89020	133 x 133 x 45 mm	PP	1	20
	99016	40 x 89012 – 89050	100 x 200 x 25 mm	PC	1	12
	99017	18 x 91015 or 10 x 91050	97 x 205 x 60 mm	PP	1	45
	99018	8 x 91253 or 8 x 91106	86 x 197 x 71 mm	PP	1	28
	99019	30 x 91015 or 20 x 91050	168 x 205 x 60 mm	PP	1	30



- 3 A raised lid design allows the storage of larger cryo tubes.
- 4 The black alpha-numeric scale is placed on the base as well as on the outer side.

Quality Standards

Quality Management

TPP is ISO 9001 certified and manufactures according to the guide lines of cGMP. This quality standard is audited and confirmed by re-certification processes regularly. The ISO certificate can be downloaded at www.tpp.ch.

Quality Control: from Raw Material to the ready TPP Product

TPP feels obliged to exclusively reach the highest quality goals during its manufacturing processes. This is realized by means of compliance and monitoring with the complex quality assurance system. Products are dispatched only when all criteria are fulfilled. By this TPP guarantees faultless and top-quality products for all areas of tissue culture and laboratory uses.

Raw Material

All incoming material and products pass a rigorous and documented quality control based on specifications. Deliveries are accepted from checked vendors only.

Production

Production is in clean room environment on in-line production lines. Regular documented quality controls according to quality control plan are performed. Independent laboratories make regular purity and hygiene tests.







Quality Control

All products are tested during and after the manufacturing process based on strict specifications. Test results and corrective actions are documented, employees regularly trained.

Dispatch Control

We perform random examinations of the quality and quantity of the final product with documentation of the results. After release of the data a quality certificate can be generated on www.tpp.ch.

Standards

-  All TPP products are sterilised with gamma radiation. Sterility is maintained as long as the packaging remains unopened and free from visible defect. Factors such as direct sunlight, moisture and large temperature amplitude changes can have negative effects on sterility. TPP guarantees a "Sterility Assurance Level" (SAL) of 10^{-3} .
-  Products that are beyond their expiry date (EXP) can cause spurious results or errors. Such products should not be used. The shelf-life is 6 years. Thereafter TPP will accept no guarantee claims.
-  Each product packaging carries a well visible, black lot number. This batch identification number ensures traceability, analyses and monitoring of all data of raw material supply, processes and quality control over a period of several years.
-  All TPP products except accessories such as racks etc. are intended for single use only.
-  All products are solely intended for general laboratory use by competent staff. The products have not been registered for their direct use on humans.
-  Quality certificate from TPP can be generated online at www.tpp.ch.

Production

TPP products are manufactured in a clean room environment.

Free from pyrogens and detectable endotoxins

Endotoxins belong to the pyrogens, substances that can cause fevers. They can influence growth and functionality of tissue cultures. All TPP products are tested systematically with the LAL test to prove the absence of endotoxin. The value of endotoxin is < 0.06 EU/ml, except for example PCV tubes, tissue culture flask with peel-off foil. Their value is < 0.5 EU/ml. Exact data are available from the quality certificates that can be generated under www.tpp.ch.

Free from detectable RNA / DNA

RNA / DNA are genetic information carriers. Material that is contaminated with RNA / DNA can lead to false positive signals during PCR. They unintentionally amplify with the desired template. Independent research laboratories periodically test and confirm that no foreign RNA / DNA is detectable on TPP products.

Free from detectable RNase / DNase

RNases / DNases are enzymes that degrade RNA / DNA. They are components of each living cell and cannot be destroyed by the sterilisation process. Independent research laboratories periodically test and confirm that no foreign RNase / DNase are detectable on TPP products.

Sterility

Sterility describes the aseptic condition, i.e. the absence of living organism. During the sterilisation process transferable organism such as fungi, bacteria or viruses are killed. TPP achieves product sterility through a sterile production process followed by gamma sterilisation. TPP guarantees a "Sterility Assurance Level" (SAL) of 10^{-3} . The sterility is validated conforming DIN EN ISO 11137.

Growth treatment

To optimally enhance the adhesion of the cells to the plastic surface, the growth areas of all TPP tissue culture vessels are treated by an optic-mechanic method developed by TPP. The result is a plane and growth enhancing surface that has an optimum proliferation effect. TPP tissue culture products are tested lot-wise for their different tissue growth criteria.

Free from cytotoxic substances

Cytotoxic substances are cell poisons that have the ability to weaken or even kill cells. All TPP tissue culture products are free from cytotoxic substances. TPP tests this regularly, conforming to DIN EN ISO 10993-5.

Leaching

Leaching signifies the slow compounds dissolving (leaching) from plastic ware into buffer and solvents. TPP avoids this by using ultrapure raw material that is certified to be free of chemical softeners and additive. Recycled and contaminated raw material is never processed with TPP products. Raw materials conform to the medical directives (93/42) and the Pharmacopoeia USP Class 6. In addition, during production optimized moulds are used that work without any slip agents.

General Information

Raw Materials / Properties of Plastics

TPP processes only the highest grades of raw materials. No stripping agents or softeners are employed. All colourings and packaging materials are free from heavy metals. Our plastics and products behave environmentally neutral during disposal processing.

	Polyethylene	Polypropylene	Polystyrene
Letter symbol	(HD) PE (High Density)	PP	PS
Heat resistance	permanent loading: 70 – 80 °C (158 – 176 °F) short-term max: 80 – 100 °C (176 – 212 °F) cannot be autoclaved	permanent loading: 100 – 110 °C (212 – 230 °F) short-term max: 120 – 140 °C (248 – 284 °F) can be autoclaved (121 °C / 250 °F)	permanent loading: 60 – 70 °C (140 – 158 °F) short-term max: 75 – 80 °C (167 – 176 °F) cannot be autoclaved
Low-temperature resistance (tested at:)	-40 °C (-104 °F)	-190 °C (-374 °F)	-40 °C (-104 °F)
Flammability	combustible	combustible	combustible
Density	0.93 g / cm ³	0.90 g / cm ³	1.05 g / cm ³
Hygroscopicity	< 0.1 %	< 0.1 %	< 0.1 %
Optical properties	translucent to opaque	translucent shiny surface	transparent, shiny surface with 90 % transparency index (at 400 – 800 nm)
General mechanical properties	rather low tensile strength and surface hardness; high ductility at soft and harder levels; low resistance to stress cracking; water repellent; susceptible to electrostatic charging.	high fracture strength; dimensionally stable; high stiffness, strong and hard.	low fracture ductility; low warm strength; excellent electrical insulation properties; not suitable for use at high centrifugal loads.
General chemical properties	exhibits high resistance; dilute acids, alkalis, alcohol, oil and salt solutions do not attack PE. Concentrated, oxidising acids such as nitric acid, and the halogens, lead to disintegration.	high resistance to aqueous solutions of inorganic salts, acids, and alkalis, as well as to organic solvents up to 60 °C. Stable in alcohols, esters and ketones. Aromatic and halogenated hydrocarbons, oxidising substances such as concentrated nitric acid and, at higher temperatures, fats, oils and waxes all lead to swelling of PP.	high resistance to salt and caustic solutions, non-oxidising acids, alkalis and alcohols. Petroleum spirit, etheric oils, strongly oxidising agents and aromatics attack PS and give rise to stress cracking.
Disposal	PE / PP / PS are pure hydrocarbon compounds and therefore neutral to the environment. No harmful substances are generated during controlled burning		
Standards	The PP material used for our centrifuge tubes fulfils the requirements of Pharmacopoeia (USP) Class 6 and Class 1 medical devices according to directive 93/42.		

Resistance to chemicals	Polyethylene (PE)	Polypropylene (PP)	Polystyrene (PS)
1,4-Dioxane	±	±	±
2-Butanol	±	±	±
2-Methoxyethanol	±	±	±
2-Propanol	±	±	±
A			
Acetaldehyde			
Acetic acid			
Acetic acid 5%			
Acetic acid 50%			
Acetic acid glacial			
Acetone			
Acetonitrile			
Acetophenone			
Adipic Acid			
Allyl alcohol			
Aluminium chloride			
Amino acids			
Ammonia			
Ammonia 25% aq			
Ammonium			
Ammoniumchloride aq			
Amyl acetate			
Amyl alcohol			
Aniline			
Aqua regia			
Aqua regia (HNO ₃) (HCl)			
D			
Decahydronaphthalene			
Dibutylphthalate			
Diethyl malonate			
Diethylene glycol			
Diethylether			
Dimethylsulphide			
E			
Ethyl acetate			
Ethyl alcohol (A)			
Ethyl alcohol 40			
Ethyl alcohol 96			
Ethylene oxide 1			
Ethylene chloride			
Ethylene glycol			
M			
Magnesium chloride aq			
Mercuric chloride			
Mercury			
Methanol 100%			
Methoxyethyl Oleate			
Methoxyethyl alcohol			

Details of resistance to chemical attack are listed under www.tpp.ch

Storage Recommendations

We recommend a careful storage of the fragile and breakable TPP products at a relative humidity of max. 50 – 60 % and a temperature of 10 – 30 °C (50 – 86 °F). Do not expose to direct sunlight.

Packaging

Modular TPP cases allow freedom of combination during stacking. Palettes conform to the international, phytosanitary directives (SPM 15-standard).



Fragile













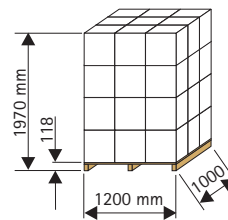
Protect against humidity



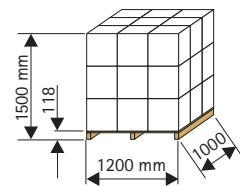
Do not expose to direct sunlight

TPP-Cases

		L x W x H in mm (inch)
	1/1 case	390 x 330 x 460 (15.34 x 13 x 71 inch)
	1/2 case	390 x 330 x 230 (15.34 x 13 x 9.05 inch)
	1/4 case	390 x 330 x 110 (15.34 x 13 x 4.33 inch)
	1/4 dispenser	390 x 330 x 110 (15.34 x 13 x 4.33 inch)
	1/16 case	390 x 162 x 55 (15.34 x 6.37 x 2.16 inch)
	1/4L yellow sample case	390 x 162 x 230 (15.34 x 6.37 x 9.05 inch)
	1/8L yellow sample case	390 x 162 x 110 (15.34 x 6.37 x 4.33 inch)
	1/16L yellow sample case	390 x 162 x 55 (15.34 x 6.37 x 2.16 inch)
	Jumbo 1	Protection case for 1 x 1/1 case
	Jumbo 2	Protection case for 2 x 1/1 cases



Land / Sea Freight
Weight approx. 500 kg
(1102 lbs)



Air Freight
Weight approx. 375 kg
(827 lbs)

The very stable external transportation boxes guarantee that no damage will occur to the fragile tissue culture products during transport.

Conversion table mm/inch and °C/°F and kg/lbs

mm	inch	°C	°F	kg	lbs
mm x 0.039 = inch		°C x 9/5 + 32 = °F		kg x 2.2046 = lbs	
1	0.039	0	32	1	2.2046
5	0.197	1	33.8	1.5	3.3069
10	0.394	10	50	2	4.4092
20	0.787	20	68	5	11.023

Tissue Culture Flasks



Type	Product-No.	Version	Qty / Bag	Qty / Case	Material	Case	Weight / Case	page 4
	90025	"VENT"	10	360	PS + PE	1/1	6,5 kg	Code B
	90026	Filter	10	360	PS + PE	1/1	6,5 kg	
	90075	"VENT"	5	100	PS + PE	1/1	5,9 kg	
	90076	Filter	5	100	PS + PE	1/1	5,9 kg	
	90150	"VENT"	3	36	PS + PE	1/1	5,0 kg	
	90151	Filter	3	36	PS + PE	1/1	5,0 kg	
	90300	"VENT"	3	18	PS + PE	1/1	4,5 kg	
	90301	Filter	3	18	PS + PE	1/1	4,5 kg	

Screw Caps



Type	Product-No.	Version	Qty / Bag	Qty / Case	Material	Case	Weight / Case	page 4
	90930	"VENT" 150/300	1	70	PE	1/4	0,8 kg	Code B
	90931	Filter 150/300	1	70	PE	1/4	0,8 kg	
	90936	Filter 150/300	20	200	PE	1/4	1,6 kg	

Tissue Culture Flasks with re-closable lids or peel-off foils



Type	Product-No.	Growth Surface	Qty / Bag	Qty / Case	Material	Case	Weight / Case	page 6
	90551	150 cm ²	3	18	PS + PE	1/2	2,3 kg	Code B
	90552	150 cm ²	3	18	PS + PE	1/2	3,0 kg	
	90651	115 cm ²	3	18	PS + PE	1/2	2,3 kg	
	90652	115 cm ²	3	18	PS + PE	1/2	3,0 kg	

Tissue Culture Tubes



Type	Product-No.	Growth Surface	Qty / Bag	Qty / Case	Material	Case	Weight / Case	page 8
	91106	20 cm ²	20	800	PS + PE	1/1	7,9 kg	Code B
	91253	10 cm ²	5	350	PS + PE	1/1	7,9 kg	

Cell Scrapers and Cell Spatula



Type	Product-No.	Width of Blade	Qty / Bag	Qty / Case	Material	Case	Weight / Case	page 10
	99002	13 mm	1	150	PS + PE	1/4 Dispenser	1,8 kg	Code B
	99003	20 mm	1	150	PS + PE	1/4 Dispenser	2,2 kg	
	99004	25 mm	1	100	PS + PE	1/4 Dispenser	2,2 kg	
	99010	14 mm	1	150	PP	1/4 Dispenser	1,5 kg	

Bioreactor 50 und Bioreactor 600



Type	Product-No.	Volumen	Qty / Bag	Qty / Case	Material	Case	Weight / Case	page 12
	87050	50 ml	20	180	PP + PE	1/2	3,2 kg	Code B
	87600	600 ml	1	26	PP + PE	1/1	6,1 kg	

PCV Tube and "easy read" Measuring Device



Type	Product-No.	Volumen	Qty / Bag	Qty / Case	Material	Case	Weight / Case	page 14
	87005	1 ml	50	250	PS	1/4	0,6 kg	Code A
	87007	1 ml	50	150	PS	1/16	0,3 kg	
	87008	-	50	150	PE	1/16	0,2 kg	
	87010	0-5 µl	1	1	Alu	1/16	0,3 kg	

Serological Pipettes



Type	Product-No.	Volume	Reservoir	Qty / Case	Material	Case	Weight / Case	page 16
	94001	1 ml		400	PS	1/4 Dispenser	1,9 kg	Code B
	94002	2 ml		300	PS	1/4 Dispenser	1,9 kg	
	94005	5 ml		200	PS	1/4 Dispenser	2,4 kg	
	94010	10 ml		200	PS	1/4 Dispenser	2,8 kg	
	94024	25 ml		100	PS	1/4 Dispenser	2,4 kg	
	94525	25 ml	15 ml	60	PS	1/4 Dispenser	1,5 kg	
	94550	50 ml	20 ml	50	PS	1/4 Dispenser	1,6 kg	

Tissue Culture Test Plates



Type	Product-No.	Version	Qty / Bag	Qty / Case	Material	Case	Weight / Case	page 18
	92006		1	126	PS	1/1	8,3 kg	Code B
	92012		1	126	PS	1/1	9,0 kg	
	92024		1	126	PS	1/1	9,9 kg	
	92096		1	162	PS	1/1	11,7 kg	
	92097		1	162	PS	1/1	12,0 kg	
	92406		4	64	PS	1/2	4,3 kg	
	92412		4	64	PS	1/2	4,7 kg	
	92424		4	64	PS	1/2	5,1 kg	
	92696		6	96	PS	1/2	6,7 kg	
	92697		6	96	PS	1/2	6,9 kg	

Tissue Culture Dishes



Type	Product-No.	Qty / Bag	Qty / Case	Material	Case	Weight / Case	page 20
	93040	20	900	PS	1/2	4,0 kg	Code B
	93060	14	840	PS	1/1	8,1 kg	
	93100	10	240	PS	1/1	6,8 kg	
	93150	5	100	PS	1/1	6,6 kg	

Vacuum Filtrations "rapid"-Filtermax



Type	Product-No.	Filter Area	Qty / Bag	Qty / Case	Material	Case	Weight / Case	page 22
	99150	49 cm ²	1	12	PS+PP+PE	1/2	2,0 kg	Code B
	99155	49 cm ²	1	24	PS	1/2	2,0 kg	
	99250	49 cm ²	1	12	PS+PP+PE	1/2	2,4 kg	
	99255	49 cm ²	1	24	PS	1/2	2,4 kg	
	99500	49 cm ²	1	12	PS+PP+PE	1/2	3,1 kg	
	99505	49 cm ²	1	24	PS	1/2	2,6 kg	
	99950	69 cm ²	1	6	PS+PP+PE	1/2	3,0 kg	
	99955	69 cm ²	1	12	PS	1/2	1,4 kg	

Syringe Filters



Type	Product-No.	Filter Area	Qty / Bag	Qty / Case	Material	Case	Weight / Case	page 23
	99722	6 cm ²	1	200 (5x40)	PET/PES	1/4	1,8 kg	Code A
	99745	6 cm ²	1	200 (5x40)	PET/PES	1/4	1,8 kg	

Centrifuge Tubes



Type	Product-No.	Volume	Qty / Bag	Qty / Case	Material	Case	Weight / Case	page 24
	91015	15 ml	40	800	PP+PE	1/1	6,5 kg	Code A
	91016	14 ml	40	800	PP+PE	1/1	6,6 kg	
	91019	13 ml	40	800	PP+PE	1/1	6,2 kg	
	91050	50 ml	20	360	PP+PE	1/1	6,1 kg	
	91051	50 ml	20	320	PP+PE	1/1	6,0 kg	
	91115	15 ml	40	800	PP+PE	1/1	7,4 kg	
	91515	30 x 15 ml	1	10	PP+PE	1/1	5,1 kg	
	91550	20 x 50 ml	1	10	PP+PE	1/1	4,5 kg	

Cryo Tubes



Type	Product-No.	Volume	Qty / Bag	Qty / Case	Material	Case	Weight / Case	page 26
	89012	1.2 ml	100	800	PP	1/4	1,8 kg	Code A
	89020	2.0 ml	100	800	PP	1/4	2,1 kg	
	89040	3.8 ml	100	400	PP	1/4	1,6 kg	
	89050	4.5 ml	100	400	PP	1/4	1,8 kg	
	99020	-	6 x 100	7800	PP	1/4	1,3 kg	

Racks and Cryo Boxes



Type	Product-No.	Qty / Bag	Qty / Case	Material	Case	Weight / Case	page 28
	99014	1	10	PP	1/2	2,7 kg	Code A
	99015	1	20	PP	1/2	3,3 kg	
	99016	1	12	PC	1/4	1,8 kg	
	99017	1	45	PP	1/2	4,5 kg	
	99018	1	28	PP	1/2	3,3 kg	
	99019	1	30	PP	1/2	5,0 kg	

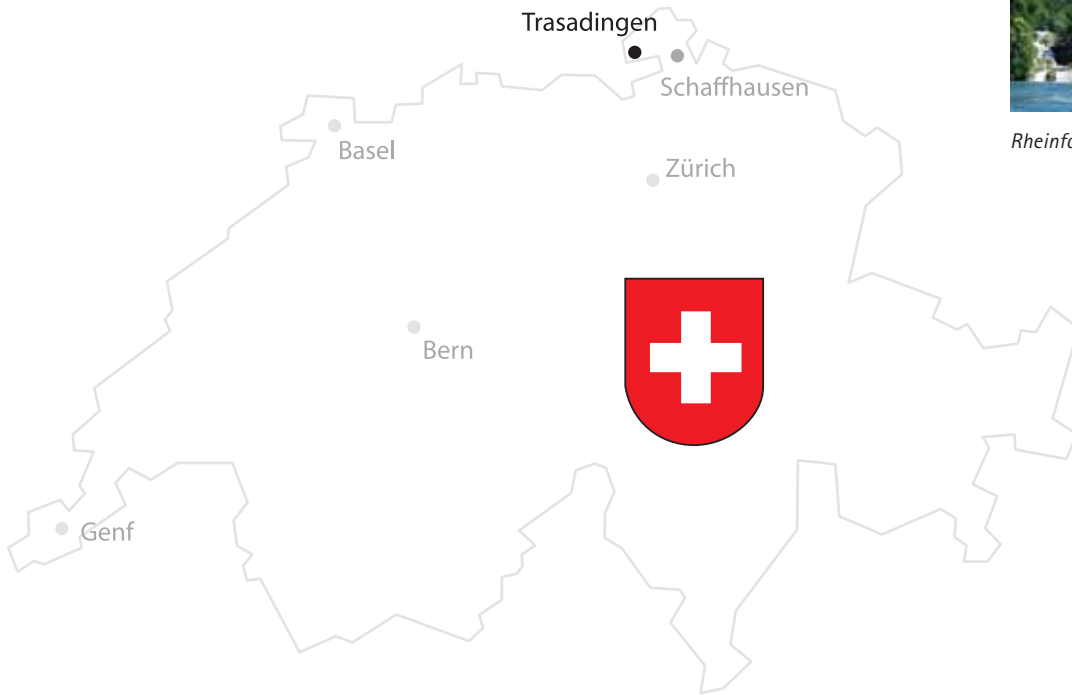
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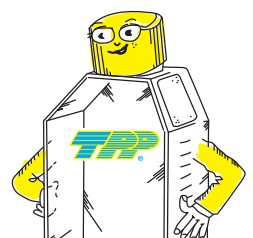
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