

Technical Data Sheet																	
Use in	<ul style="list-style-type: none"> Pharmaceutical Industry in clean rooms and isolators For industrial, laboratory & research applications only 																
Use for	<ul style="list-style-type: none"> Detection of aerobic and anaerobic micro-organisms Contact sampling, personnel monitoring, as well as active air monitoring Isolation and growth of fastidious bacteria, yeasts and moulds Universal neutralization of residues of disinfectants <p>The medium should be applied with a uniform and steady pressure to the surface for few seconds. After sampling the surface must be cleaned to remove residues of the medium.</p>																
Typical composition per liter	<p>Basic medium according to Ph. Eur. 2.6.12, 2.6.13 and USP <61>, <62></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Casein peptone</td> <td style="width: 15%;">15 g</td> <td style="width: 33%;">Lecithin (L)</td> <td style="width: 15%;">0.7 g</td> </tr> <tr> <td>Soy peptone</td> <td>5 g</td> <td>Polysorbate 80 (T)</td> <td>5 g</td> </tr> <tr> <td>NaCl</td> <td>5 g</td> <td>Histidine (H)</td> <td>0.5 g</td> </tr> <tr> <td>Agar</td> <td>15 g</td> <td>Neutralizer PLUS</td> <td></td> </tr> </table> <p>This medium can be adjusted / or supplemented according to the performance criteria required.</p>	Casein peptone	15 g	Lecithin (L)	0.7 g	Soy peptone	5 g	Polysorbate 80 (T)	5 g	NaCl	5 g	Histidine (H)	0.5 g	Agar	15 g	Neutralizer PLUS	
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Irradiation	<ul style="list-style-type: none"> Irradiated at 9 – 20 kGy 																
Filling volume	<ul style="list-style-type: none"> 16 – 19 mL 																
Packaging	<ul style="list-style-type: none"> Triple bagged, staples of 10 plates Transparent High barrier foil for H₂O₂ as well as for water-vapor 10 staples of 10 plates per packaging unit Temperature isolated handle-bag in the cardboard-boxes 																
Plates per box	<ul style="list-style-type: none"> 100 (10 staples with 10 plates each) 																
Shelf life	<ul style="list-style-type: none"> 12 months from production date 																
Storage conditions	<ul style="list-style-type: none"> Recommended storage temperature: 15 – 25 °C Should be stored at temperatures as stable as possible Store protected from light exposure Before use: it is recommended to keep the plates upright (agar on the lower part, lid on the upper part) to avoid formation of extra condensation After use: it is recommended to keep the plates upside down (agar on the upper part, lid on the lower part) to reduce the risk of accumulation of condensation during incubation which can affect colony formation 																
Label	<ul style="list-style-type: none"> On the side, at the bottom 																

Technical Data Sheet	
Label information	<ul style="list-style-type: none"> • Product name: TSA - U+ • Expiry date: YYYYMMDD → MMM in letters (e.g.: 2026Nov04) • Lot-number • Individual number • Barcode
Barcode	<ul style="list-style-type: none"> • 2-dimensional (data matrix), 20 digits: • Digits 1-3: Art.-No. • Digits 4-9: Lot-Number • Digits 10-14: Individual-Number • Digits 15-20: Date (YYMMDD)
Delivery	<ul style="list-style-type: none"> • Temperature controlled delivery on request • For shipments of larger amounts plastic pallets in Euro-size can be used
Petri dish	<ul style="list-style-type: none"> • Locking-lid plate, made from polystyrene • Inner diameter: ~ 56.5 mm, thus providing an area of ~25 cm² • Outer diameter: ~ 66 mm • Bottom part with 1 cm² square grid for facilitated evaluation • Incubations in vent and closed position possible • Specific design to improve binding of agar to plate • Easy handling due to increased handling area
Lid positions	<ul style="list-style-type: none"> • All plates are delivered in the non-locked position • The plate contains 2 locked positions. If turning the lid clockwise the locked positions are in the following order: <ol style="list-style-type: none"> 1. Vent position 2. Closed position
Place of production	PharmaMedia Dr. Müller GmbH Gustav-Throm-Str. 1, 69181 Leimen - Germany

Quality control, Certificates		
Certificates	Every batch of product can be obtained with a certificate of analysis (CoA):	
	Physico-chemical test parameters:	
	Appearance	Slightly turbid, yellowish
	pH value	7.1 – 7.5
	Filling volume	16 – 19 mL
	Irradiation	9 – 20 kGy
	Growth Promotion test: 10 – 100 CFU	
	<i>S. aureus</i>	ATCC 6538 30-35 °C 1 day 50-200%
	<i>E. coli</i>	ATCC 8739 30-35 °C 1 day 50-200%
	<i>P. paraeruginosa</i>	ATCC 9027 30-35 °C 1 day 50-200%
	<i>B. spizizenii</i>	ATCC 6633 30-35 °C 1 day 50-200%
	<i>C. albicans</i>	ATCC 10231 30-35 °C 2-3 days 50-200%
	<i>A. brasiliensis</i>	ATCC 16404 30-35 °C 2-3 days 50-200%
Neutralizer PLUS test: 10 – 100 CFU, 50 µl Microbac forte (10%)		
<i>B. spizizenii</i>	ATCC 6633 30-35 °C 1 day 50-200%	
Sterility control		
	No growth	
Certificate of origin	<p>All media lots produced by PMM can be obtained with a Certificate of Origin (CoO). All animal derived raw materials are specified as follows:</p> <ul style="list-style-type: none"> • Raw material • Tissue • Animal source • Country of origin • Infectivity category (acc. to TSE guideline: EMA/410/01 current version) 	
BSE policy	<p>In compliance with the current note for guidance on minimizing the risk of transmitting animal spongiform encephalopathy via human or veterinary medicinal products, we check the CoO of raw material in respect to the specified animal source, the country of origin and the infectivity category. We neither store or process ruminant raw materials obtained from high infectivity tissues (IA) nor ruminant raw materials whose animal source originates from countries or regions with an undetermined risk (cat C/GBR IV).</p>	
Temperature stress	<p>Art. 101.0100 has been exposed to temperature stress conditions (3 days at 2-8 °C as well as 3 days at 30-35 °C) and has passed shelf-life testing at least 30 days after the assigned expiry date. Shelf-life testing comprises all regular tests of the normal release test of this article except for sterility control (see CoA).</p>	

Quality control, Certificates

Neutralization of residues of disinfectants

The disinfection of surfaces is crucial for maintaining an adequate environment for the production of sterile pharmaceutical drugs. To guarantee the best possible success of the disinfection process many pharmaceutical companies do perform a regular rotation of the disinfectants used. Quite often at least one of the disinfectants used contains quaternary ammonium compounds, benzalkonium compounds, biguanides or even a combination of these substances. The advantages of such disinfectants are the well proved bactericidal activity against microorganisms even if used in relatively low concentrations. However, the disadvantages are the residues which remain on treated surfaces, if not removed by a suitable cleaning step.

The removal or inactivation of residues of disinfectants is critical for the reliable detection of viable and cultivable microorganisms. If highly active residues remain on surfaces, these will be picked up with contact plates or swabs when performing environmental monitoring tests. Then these residues can interfere with the growth of potential contaminants and this could finally result in false negative results.

Whereas some residues of disinfectants can be neutralized with the standard neutralizers LTHT (Lecithin, Tween 80, Histidine and Thiosulfate – please see product description of art. 100.0100) especially the residues of quaternary ammonium compounds, benzalkonium compounds as well as biguanides are not sufficiently inactivated by these neutralizers.

To overcome this unsatisfactory inactivation of these residues, media manufacturers have tried to develop special neutralizer media. However, most of the media offered so far had different drawbacks: turbidity, precipitation, short shelf-life, low recovery rates on Gram positive strains and quite high price - and due to these disadvantages, such media have not been really accepted. PMM now offers a newly designed plate without showing these drawbacks. **TSA U+ plates** look like a regular TSA plate and are free of precipitation throughout the shelf-life of more than 9 months. However, the outstanding inactivation of all typically used disinfectants including even high concentrations of quaternary ammonium compounds, benzalkonium compounds and biguanides really is the big step forward in obtaining reliable results for the environmental monitoring.

TSA U+ plates were tested with respect to the inactivation of disinfectants using the worst-case approach by directly inoculating defined amounts of disinfectant on the agar plates. Typically, 20 µL, 50 µL or 100 µL of disinfectant was used. 100 µL of disinfectant applied to a contact plate of about 25 cm² surface correspond to about 40 mL of disinfectant used to disinfect an area of one square meter, a concentration typically used in the pharmaceutical industry. After a period of 15 to 20 min the test organisms were applied to the treated plates.

Test organisms used for such neutralization tests could be for example *B. spizizenii* ATCC 6633, *S. aureus* ATCC 6538 and *S. epidermidis* ATCC 14990 as well as *E. coli* ATCC 8739, *P. paraeruginosa* ATCC 9027, *C. albicans* ATCC 10231 and *A. brasiliensis* ATCC 16404. However, as Gram positive microorganisms are typically more sensitive to quaternary ammonium compounds, it is recommended to perform the tests with Gram positive microorganisms.

Quality control, Certificates	
	<p>As reference, plates not treated with disinfectant are used.</p> <p>Specifications: for sufficient inactivation of disinfectants the amount of 50 µL of a disinfectant applied to a contact plate must be inactivated, resulting in a recovery rate of more than 50%.</p> <p>Results: Beside the disinfectants inactivated already by our standard plate (see product description of art. 100.0100) TSA U+ plates are as well inactivating quite high concentrations of quaternary ammonium compounds, biguanides and benzylalkoniumchlorides. Disinfectants tested were Amphospray 41 IP, Gigasept AF (4%), Hexanios G+R, Hexaquart forte (2%), Incidin plus (2%), Biocide A, Biocide B, Lysoformin 3000 (2%), Melsept SF (2%), Microbac forte (2%) and Terralin protect (2%).</p> <p>Results obtained with the above listed disinfectants show recovery rates of more than 70% if 20 or 50 µL of the disinfectant was applied directly on TSA U+ plates. Even when applying 100 µL most recovery rates were above 70%, only few recovery rates dropped to values between 30 to 50%. In comparison to these results standard TSA plates with neutralizers did not show any or very low recovery rates even if only 20 µL of these disinfectants were applied. As a conclusion, TSA U+ plates can be considered as the universal media for performing environmental monitoring, delivering reliable results independent from the disinfectant used.</p>

Recommendations for use	
Aerobic incubation	<ul style="list-style-type: none"> • The closed position provides ideal incubation conditions for aerobic microorganisms • Limits the dehydration of the agar during incubation • For long incubation of aerobic microorganisms, the closed position is recommended <p>To lock the lid in the closed position, turn the lid clockwise into the final stop position</p>
Anaerobic incubation	<ul style="list-style-type: none"> • The vent position is ideal for anaerobic incubations, as it allows an easy and effective removal of oxygen under anaerobic incubation conditions • Incubate in anaerobic incubator, anaerobic jar or suitable equipment <ol style="list-style-type: none"> 1. First option: <ul style="list-style-type: none"> • Turn the lid clockwise into the final stop position • Turn the lid one click counterclockwise to the vent position 2. Second option: <ul style="list-style-type: none"> • Turn the lid clockwise directly into the first locked position

	Safety Data
Toxic ingredients	<ul style="list-style-type: none">• None
Basic composition	<ul style="list-style-type: none">• See typical composition
Solvent content	<ul style="list-style-type: none">• None
Safety data sheet required	<ul style="list-style-type: none">• Not mandatorily required