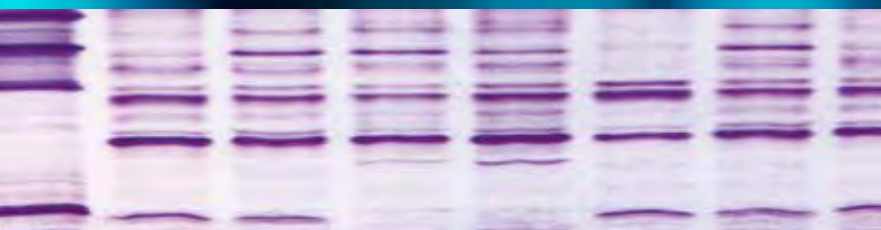


Isoelectric Focusing



Reagents and Equipment

SERVA Gels for IEF

SERVA Protein Standards for IEF

SERVALYT™ Carrier Ampholytes

Gel Supports

Reagents and Accessories

SERVA Stains for IEF Gels

SERVA Equipment for IEF

All you need for... Isoelectric Focusing

Isoelectric focusing (IEF) can be described as an ingenious process for simultaneous concentration and separation of proteins. IEF employs a pH gradient formed by small amphoteric molecules (ampholytes), e. g. SERVLYT™ carrier ampholytes, to resolve

proteins according to their different pI values (pI: isoelectric point). IEF is an end point method – when the electrophoretic run is completed, proteins will appear as separate, sharp zones, in the order of their pI.

- 1 SERVA Gels for Horizontal IEF
- 2 SERVA Gels for Vertical IEF
- 3 SERVA Protein Standards for IEF
- 4 SERVLYT™ Carrier Ampholytes
- 5 Gel Supports
- 6 Reagents and Accessories
- 7 SERVA Stains for IEF Gels
- 8 Equipment for Isoelectric Focusing



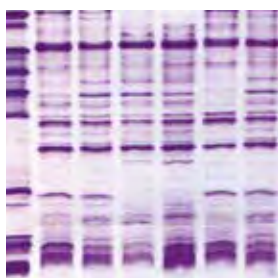
SERVA offers a comprehensive product line for IEF

SERVA Gels for Horizontal IEF

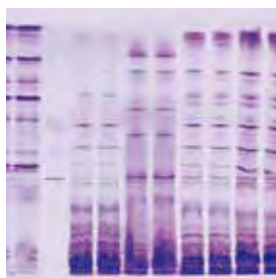
SERVALYT™ PRECOTES™ gels have a very thin gel layer featuring short separation times and staining/visualization processes. Due to the thin layer, gels only need small sample volumes to be applied. SERVALYT™ PRECOTES™ gels are recommended for a great range of QC tests in food and beverage control, species identification and tasks requiring highly sensitive detection of bands.

Gels are also available as **SERVALYT™ PreNets™** which come with a cast-in supporting fabric, ideally suited for blotting applications.

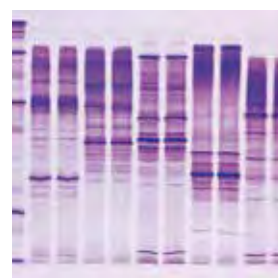
Blank PRECOTES™ gels are a superb solution to perform flatbed IEF of any pH range. These gels do not contain carrier ampholytes ("blank"), suitable for equilibration with ampholytes of choice and urea.



IEF of proteins isolated from different kinds of potato cultivars



IEF of proteins isolated from different kinds of cheese



IEF of proteins isolated from different kinds of meat

Product	Size	Cat. No.
SERVALYT™ PRECOTES™ pH 3-6, 125 mm x 125 mm x 0.15 mm	5 gels	42974.02
SERVALYT™ PRECOTES™ pH 3-6, 125 mm x 125 mm x 0.3 mm	5 gels	42874.02
SERVALYT™ PRECOTES™ pH 3-6, 245 mm x 125 mm x 0.15 mm	5 gels	42919.03
SERVALYT™ PRECOTES™ pH 3-10, 125 mm x 125 mm x 0.15 mm	5 gels	42965.03
SERVALYT™ PRECOTES™ pH 3-10, 125 mm x 125 mm x 0.3 mm	5 gels	42866.02
SERVALYT™ PRECOTES™ pH 3-10, 245 mm x 125 mm x 0.15 mm	5 gels	42967.02
SERVALYT™ PRECOTES™ pH 3-10, 245 mm x 125 mm x 0.3 mm	5 gels	42867.02
SERVALYT™ PRECOTES™ pH 4-6, 125 mm x 125 mm x 0.3 mm	5 gels	42875.02
SERVALYT™ PRECOTES™ pH 6-9, 125 mm x 125 mm x 0.15 mm	5 gels	42978.02
SERVALYT™ PRECOTES™ pH 6-9, 125 mm x 125 mm x 0.3 mm	5 gels	42878.02
SERVALYT™ PRECOTES™ CSF Kit, 245 mm x 125 mm x 0.3 mm*	1 kit	42800.01
IEF Starter Kit, 125 mm x 125 mm x 0.3 mm**	1 kit	39060.01
SERVALYT™ PreNets™ pH 3-10, 125 mm x 125 mm x 0.3 mm	5 gels	42738.02
Blank PRECOTES™, 125 mm x 125 mm x 0.3 mm	5 gels	42759.01

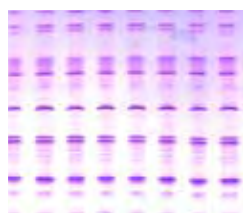
*Kit contains 5 gels, buffers, electrode wicks and applicator strips.

**Kit contains 3 gels, buffers, electrode wicks, applicator strips, cooling fluid, IEF markers and stains.

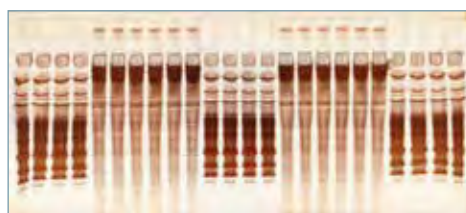
SERVA Gels for Horizontal IEF

FocusGels are offered with a gel layer of 0.65 mm which makes them less sensitive to "salt effects" than **SERVALYT™** **PRECOTES™**. Due to the high buffering capacity it is the gel of choice for all separations of salt carrying samples like serum and cerebrospinal fluid, cell and tissue extracts. One of the most important applications is the separation of oli-

goclonal bands in Multiple Sclerosis diagnostics. FocusGels contain a **SERVALYT™** cocktail designed to achieve an optimal pH gradient. Due to thickness of the layer, electrode solutions and electrode strips are not required and the electrodes are placed directly on the gel surface. FocusGels are available with 24 slots, 40 slots, or none.



SERVA IEF Gel 3-9 for PhastSystem™



FocusGel 6-11 24S

SERVAs IEF Gels 3-9 for PhastSystem™ come in package of 10 ready-to use gels.

CleanGel IEF for PhastSystem™ are gels (20 gels per package) to perform IEF at any pH range on the GE PhastSystem™. They are dried and do not contain any carrier ampholytes ("clean").

CleanGels are suitable for equilibration with ampholytes of choice and urea.

For the separation of oligoclonal bands

in Multiple Sclerosis diagnostics on the PhastSystem™, the **CSF Analysis Kit for PhastSystem™** is available. The kit contains 10 rehydratable, film-supported mini horizontal polyacrylamide gels and **SERVALYT™** carrier ampholyte mixture.

SERVAs IEF gels for PhastSystem™ are film-supported mini horizontal gels (format 50 mm x 42 mm x 0.43 mm), compatible with the GE PhastSystem™.

Product	Size	Cat. No.
FocusGel pH 3-10, 250 mm x 115 mm x 0.65 mm	5 gels	43327.01
FocusGel pH 3-10 24S, 250 mm x 115 mm x 0.65 mm	5 gels	43335.01
FocusGel pH 6-11 24S, 250 mm x 115 mm x 0.65 mm	5 gels	43329.01
FocusGel pH 3-7, 250 mm x 115 mm x 0.65 mm	5 gels	43328.01
FocusGel pH 3-7 24S, size: 250 mm x 115 mm x 0.65 mm	5 gels	43327.01
FocusGel pH 4-5 24S, size: 250 mm x 115 mm x 0.65 mm	5 gels	43332.01
FocusGel pH 4-6 24S, size: 250 mm x 115 mm x 0.65 mm	5 gels	43334.01
FocusGel pH 6-9 HEM 24S, size: 250 mm x 115 mm x 0.65 mm	5 gels	43330.01
FocusGel pH 6-11 40S, 250 mm x 115 mm x 0.65 mm	5 gels	43333.01
CSF Analysis Kit for PhastSystem™, 50 mm x 42 mm x 0.43 mm	1 kit	43393.01
CleanGel IEF for PhastSystem™, 50 mm x 42 mm x 0.43 mm	20 gels	43350.01
SERVA IEF Gel 3-9 for PhastSystem™, 50 mm x 42 mm x 0.43 mm	10 gels	43366.01
EPO Doping IEF Kit 30S, 250 mm x 115 mm x 0.65 mm	1 kit	43389.01
Blank FocusGel 24S, 250 mm x 115 mm x 0.65 mm	5 gels	43413.01

FocusGel – high buffering capacity, sample loading into slots

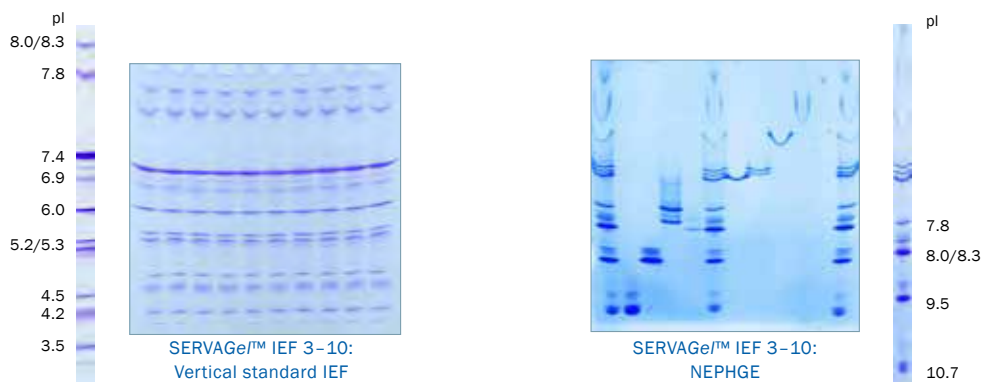
IEF Gel for PhastSystem™ – SERVAs alternative product with comparable separation patterns

2

SERVA Gels for Vertical IEF

SERVAge™ IEF are vertical precast gels for IEF in mini slab gel format. The gels are casted into unbreakable plastic cassettes of 10 cm x 10 cm x 0.7 cm and could be run in standard vertical mini gel apparatus. Gels are available

in pH ranges of 3-10 and 4-7. For standard applications, apply samples cathodic. For very basic proteins (> pH 7.5) samples could be applied anodic to perform NEPHGE (=non-equilibrium pH gradient electrophoresis).



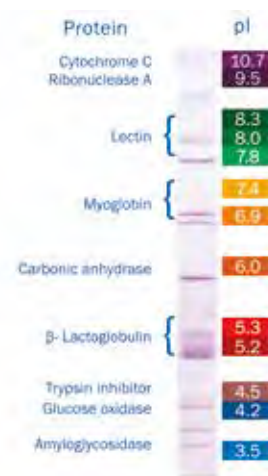
Product	Size	Cat. No.
SERVAge™ IEF 3-10, 10 sample wells	10 gels	43242.01
SERVAge™ IEF 3-10, 12 sample wells	10 gels	43240.01
SERVAge™ IEF 3-10, 15 sample wells	10 gels	43239.01
SERVAge™ IEF 4-7, 10 sample wells	10 gels	43243.01
SERVAge™ IEF 4-7, 12 sample wells	10 gels	43241.01
SERVAge™ IEF 4-7, 15 sample wells	10 gels	43244.01
SERVAge™ IEF Starter Kit*	1 kit	43205.01
SERVAge™ IEF Running Buffer Kit	1 kit	42539.01
IEF sample buffer (2x), sterile filtered	20 ml	42537.01

* Kit contains 4 gels, buffers, IEF marker and stains

3

SERVA Protein Standards for IEF

SERVA offers two different protein standards for accurate pI determination of unknown proteins by IEF. Standards are applicable to all IEF gels, horizontal and vertical. The standards contain 9 proteins each, 13 isoforms forming a characteristic pattern. One standard is ready-to-use, the other one is lyophilized.



Product	Size	Cat. No.
Protein test mixture for pI determination, pH 3 - 10	10 mg	39211.01
IEF Marker 3 - 10, liquid mix	500 µl	39212.01

SERVALYT™ Carrier Ampholytes

SERVALYT™ carrier ampholytes are low molecular weight molecules of zwitter-ionic character. They are a mixture of synthetically derived species of average molecular weight distribution of 400 to 1000 dalton and comprise a multitude of varying pI values. In agarose and polyacrylamide gels containing ampholytes, a

linear pH gradient will be formed when an electric field is applied - the ampholyte molecules »carry« a net charge and thus migrate in the electric field between the electrodes as long as they will reach the position of corresponding pI. They will stop moving then and form small plateaus (stationary stacks).

SERVALYT™	2 ml Cat. No.	10 ml Cat. No.	25 ml Cat. No.	100 ml Cat. No.
2-4	-	42902.01	42902.02	-
2-9 Seed Mix	-	42935.01	42935.02	42935.03
2-11	-	42900.01	42900.02	-
3-4	-	42922.01	42922.02	-
3-5	42903.04	42903.01	42903.02	-
3-6	42944.04	42944.01	42944.02	-
3-7	-	42945.01	42945.02	-
3-10	42940.04	42940.01	42940.02	-
3-10 IsoDalt	42951.04	42951.01	42951.02	-
4.2-4.9	-	42926.01	42926.02	-
4-5	-	42923.01	42923.02	-
4-6	42904.04	42904.01	42904.02	-
4-7	42948.04	42948.01	42948.02	-
4-9 T	-	42910.01	42910.02	42910.03
5-6	-	42924.01	42924.02	-
5-7	42905.04	42905.01	42905.02	-
5-8	42949.04	42949.01	42949.02	-
5-9	-	42950.01	42950.02	-
6-7	-	42925.01	42925.02	-
6-8	42906.04	42906.01	42906.02	-
6-9	42913.04	42913.01	42913.02	-
7-9	42907.04	42907.01	42907.02	-
8-10	-	42911.01	42911.02	-
9-11	-	42909.01	42909.02	-

- SERVALYT™ 4.2-4.9 for phenotyping alpha-1-antitrypsin by hybrid IEF
- High resolution due to multimeric composition
- Clear background because of very low unspecific binding of dyes and stains



Supporting Films and Fabrics for Casting Gels

Gel-Fix™ for PAG is a transparent, chemically inert polyester film (180 µm) which is activated on both sites to bind covalently a polyacrylamide gel (PAG). The gel adheres to the film during electrophoresis and all subsequent fixing and staining procedures. To protect the gel layer against drying out or damage, SERVA offers Gel-Fix™ for Cov-

ers, a coated polyester film (75 µm) with a hydrophilic layer to prevent adhesion of the gel. For subsequent blotting NetFix™ for PAG is highly recommended to provide optimal gel support. The polyester fabric is incorporated into the gel matrix during casting. It does not interfere with electrophoresis or blotting.

Product	Size	Cat. No.
GEL-FIX™ for PAG, 265 mm x 193 mm	36 sheets	42983.01
GEL-FIX™ for PAG, 265 mm x 125 mm	36 sheets	42993.01
GEL-FIX™ for PAG, 260 mm x 203 mm	36 sheets	42961.01
GEL-FIX™ for PAG, 260 mm x 125 mm	36 sheets	42999.01
GEL-FIX™ for PAG, 245 mm x 125 mm	36 sheets	42980.01
GEL-FIX™ for PAG, 200 mm x 193 mm	1 roll	42996.01
GEL-FIX™ for PAG, 50 mm x 193 mm	1 roll	42968.01
GEL-FIX™ for PAG, 50 mm x 125 mm	1 roll	42966.01
GEL-FIX™ for Agarose, 265 mm x 125 mm	36 sheets	42981.01
GEL-FIX™ for Agarose, 258 mm x 125 mm	36 sheets	42982.01
GEL-FIX™ for Agarose, 125 mm x 125 mm	36 sheets	42997.01
GEL-FIX™ for Agarose, 80 mm x 125 mm	36 sheets	42998.01
GEL-FIX™ Covers, 280 mm x 125 mm	36 sheets	42995.01
GEL-FIX™ Covers, 265 mm x 193 mm	36 sheets	42969.01
GEL-FIX™ Covers, 265 mm x 125 mm	36 sheets	42970.01
GEL-FIX™ Covers, 245 mm x 125 mm	36 sheets	42957.01
NetFix™ for PAG, 265 mm x 125 mm	36 sheets	42775.01

- Supporting film for all types of polyacrylamide and agarose gel layers
- Can be cut into every desired size
- Stable to temperatures up to 110 °C
- Customized formats are available upon request



Reagents and Accessories for IEF

SERVA's ready-to-use acrylamide/bis, acrylamide and N,N'-methylene bisacrylamide stock solutions allow you to cast your own gels with the desired acrylamide/bisacrylamide ratio. The solutions are made from highly purified acrylamide and N,N'-methylene bisacrylamide, stabilized and application

tested in isoelectric focusing. Minimize your health risk and optimize your results. Agarose SERVA neutral for IEF is a premium grade agarose for isoelectric focusing, chemically treated to neutralize residual negative charge sites, virtually eliminating electroendosmosis.

Product	Size	Cat. No.
Acrylamide/Bis solution, 29:1 (40 % w/v), 3.3 % C	500 ml	10680.01
	1 L	10680.03
	4x 500 ml	10680.02
Acrylamide/Bis solution, 29:1 (30 % w/v), 3.3 % C	500 ml	10687.01
	1 L	10687.03
	4x 500 ml	10687.02
Acrylamide 4X solution (40 % w/v)	1 L	10677.01
N,N'-Methylene bisacrylamide 2X solution (2 % w/v)	1 L	29197.01
Agarose SERVA neutral for IEF	5 g	11402.02
Ammonium persulfate (APS), electrophoresis grade	50 g	13376.01
	250 g	13376.02
N, N, N', N'- Tetramethyl-ethylenediamine (TEMED), electrophoresis grade	10 ml	35930.01
	25 ml	35930.02
IEF sample buffer (2x), sterile filtered	20 ml	42537.01
Anode fluid 3 for IEF	50 ml	42984.03
Cathode fluid 10 for IEF	50 ml	42986.03
Applicator strips 2 x 3.5, 19 slots, 100 mm long	6 pieces	42914.01
Applicator strips 3.5 x 2, 15 slots, 100 mm long	6 pieces	42915.01
Applicator strips 3.5 x 2, 43 slots, 240 mm long	3 pieces	42899.01
Applicator strips 7 x 1.2, 24 slots, 263 mm long	3 pieces	42989.01
Applicator strips kit	1 kit	42937.02
Sample Application Pieces 10 mm x 5 mm	200 pieces	42880.01
Kerosene, low odor	1 L	26945.01
Bayol F	100 ml	14500.01
	1 L	14500.02
Cooling Contact Fluid	50 ml	43371.01
	3 x 50 ml	43371.02
Electrode wicks extra size, 300 mm x 6 mm x 1 mm	100 pieces	42972.03
Electrode wicks long size, 240 mm x 6 mm x 1 mm	100 pieces	42987.03
Electrode wicks standard size, 120 mm x 6 mm x 1 mm	100 pieces	42988.01

SERVA Stains for IEF Gels

Depending on the required sensitivity and/or application IEF gels may be stained either by SERVA Blue W, SERVA Violet 17 or by silver. The SERVA Violet 17 Staining Kit is a fast and convenient solution for rapid staining in routine applications. SERVA offers two different silver staining kits for

highly sensitive staining of protein bands. For staining gels in diagnostics of Multiple Sclerosis (MS) the SERVA CSF Silver Staining Kit has been developed. Beside kits as complete solutions a comprehensive product line of dyes and reagents for staining IEF gels is available.

	SERVA Violet 17 Staining Kit	Silver Staining Kit Native PAGE	SERVA CSF Silver Staining Kit
Type of Stain	Colloidal Violet 17	Fast silver stain	Highly sensitive, for MS diagnostics
Detection	Visual, colorimetric	Visual, colorimetric	Visual, colorimetric
Sensitivity	100 ng	1 ng	0.1 ng
Staining time	30 min	45 – 60 min	200 min
Protocol	Fix, rinse, stain, water-based destain	Fix, wash, sensitize, wash, stain, wash, develop, wash, stop	Fix, wash, sensitize, wash, stain, wash, develop, wash, stop
For Densitometry	✓	✗	✗
MS compatible	✓	✓	✓
No. of gels stained	5 large gels or 10 mini gels	25 mini gels	5 large gels
Cat. No.	35074.01	35077.01	43398.01

Product	Size	Cat. No.
SERVA Blue G	25 g	35050.02
	100 g	35050.03
SERVA Blue R	25 g	35051.02
	100 g	35051.03
SERVA Blue W	25 g	35053.02
	100 g	35053.03
SERVA Violet 17	25 g	35072.02
	100 g	35072.03
Coomassie® Brilliant Blue G 250	25 g	17524.01
	100 g	17524.02
Coomassie® Brilliant Blue R 250	25 g	17525.01
	100 g	17525.02

Equipment for Isoelectric Focusing

BlueVertical™ PRiME™ & TankBlotter

- Dual mini tank systems
- Accommodates 1 – 2 gels in cassettes with outer dimensions of 10 cm x 10 cm x 0.7 cm
- Leak-free inner core unit with a unique clamp system
- Unique, easy-to-handle blotting insert for tank blotting
- Gel Casting Stand for pouring two gels
- Quality designed and made in Germany



Product	Size	Cat. no.
BlueVertical™ PRiME™	1 unit	BV-104
BlueVertical™ PRiME™ TankBlot	1 unit	BV-104-TB
BlueVertical™ PRiME™ Casting Stand	1 unit	BV-104-CS
BlueVertical™ PRiME™ Blot Module	1 unit	BV-104-B

HPE™ BlueHorizon™

- Highly sophisticated flatbed system for horizontal electrophoresis
- High capacity cooling plate for highest resolution and band sharpness
- Suitable for gels up to 260 mm x 205 mm
- For 1D and 2D SDS PAGE, for high voltage applications like IEF
- Wide range of horizontal precast gels available
- Platinised electrodes with variable spacing - depending on the application
- Samples easy to load, low buffer consumption
- Stackable, up to four units under the control of one power supply and one chiller
- Smart design – made in Germany



Product	Size	Cat. no.
HPE™ BlueHorizon™	1 unit	HPE-BH
HPE™ BlueHorizon™ System (including HPE™ BlueHorizon™, HPE™ Cooling Unit, BluePower™ 3000 HPE™ Power Supply)	1 system	HPE-BSYS

BluePower™ Power Supply

- For vertical mini gel electrophoresis: BluePower™ 600 PRiME™ Power Supply (600 V, 1000 mA, 300 W)
- For horizontal electrophoresis: BluePower™ 3000 HPE™ Power Supply (3000 V, 200 mA, 300 W)
- Fully programmable (9 programmes with 9 steps each)
- 4x 2 outlets



Product	Size	Cat. no.
BluePower™ 600 PRiME™ Power Supply	1 unit	BP-600-PRI
BluePower™ 3000 HPE™ Power Supply	1 unit	BP-3000-HPE

SERVA BlueStain

- Stains all gels and membranes - accurate and reproducible
- For 1D SDS and native PAGE, 2D and IEF gels, DNA gels
- Suitable for the whole range of currently applied staining methods
- For short or long time incubations – even over night
- Supplies up to 10 liquids in volumes up to 500 ml each
- Maintenance-free, quiet mechanics for moving the staining platform
- Smart design – made in Germany



Product	Size	Cat. no.
SERVA BlueStain	1 unit	BST-01
SERVA BlueStain Pharma Upgrade Kit	1 unit	BST-PU
SERVA BlueStain Spare Part Kit	1 kit	BST-R01

Digital Imaging and Analysis System

- Fast and convenient gel documentation system
- Includes darkroom cabinet, UV filter, digital SLR camera
- Optional available: UV-, white and blue light transilluminator, epi-white-light, LabImage 1D analysis software



Product	Size	Cat. no.
Digital Imaging and Analysis System III	1 system	DIAS-III

BIO-5000 Plus VIS Gel Scanner

- Leak-free holder for scanning wet electrophoresis gels in transmission mode
- Scanning of stained blot membranes in reflection mode
- CCD image sensor
- Resolution up to 4,800 dpi
- Dynamic range over approx. 3.7 O.D. units
- Auto-focus for highest image quality
- Easy-to-use scanning software
- Scanning area up to 216 mm x 254 mm



Product	Size	Cat. no.
BIO-5000 Plus VIS Gel Scanner	1 unit	BIO-5000P

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Fax: +49 6221 13840-10
E-mail: info@serva.de · www.serva.de

Some examples of versatile IEF applications:

Agriculture

- Maize
- Wheat
- Sorghum
- Carot
- Potato

Veterinary

- Pork
- Cattle
- Turkey
- Chicken

Food

- Meat
- Cheese
- Pasta

Health

- Multiple Sclerosis
- EPO
- Antibody
- Recombinant Proteins

