

Multiphor II Electrophoresis System

One system for 1-D or 2-D protein electrophoresis or DNA fragment analysis

Introduction

Multiphor™ II Electrophoresis System and accessories offer a well-proven solution for analytical or preparative separations of proteins and peptides by isoelectric focusing (IEF), native or SDS PAGE, 2-D PAGE and DNA electrophoresis. The system comprises three major components: the Multiphor II Electrophoresis Unit and EPS 3501 XL Power Supply ensure successful separation, while the MultiTemp™ III Throstatic Circulator provides efficient, uniform cooling to further improve resolution and speed up separations at high voltages (Fig 1). The power rating of the EPS 3501 XL is able to handle both electrophoretic and basic blotting applications.

- Compatible with a wide range of precast gels for improved reproducibility
- Run up to 12 IPG strips (7–24 cm) simultaneously
- Well-suited for running 2-D and 1-D electrophoresis, both native and SDS-PAGE
- Easily adapted for semi-dry blotting
- High-quality reagents and accessories available to produce lab-cast gels

Versatility

A modular design allows the use of Multiphor II Electrophoresis System for almost any flatbed electrophoresis technique, while the horizontal format is particularly well-suited to working with thin gels on glass or plastic supports. These 0.5 mm thin gels are easily handled and have excellent size stability.

The buffer tank of the Multiphor II electrophoresis unit contains four chambers, each with a one liter capacity, allowing a choice of two orientations for an electrophoresis run. An electrode holder with movable PAGE/IEF electrodes for buffer strips and electrode strips accommodates gels of different sizes and ensures that the electrodes make secure, uniform contact with buffer strips, eliminating the need for large volumes of buffers. Buffer strips can be positioned and held in place using Multiphor II Buffer Strip Positioner. A polycarbonate safety lid fits into the buffer tank, minimizing condensation and reducing carbon dioxide levels around the gel, especially important for IEF at basic pH values. A large ceramic cooling plate within the unit connects to the MultiTemp III Throstatic Circulator.



Fig 1. Main components of Multiphor II Electrophoresis System: Multiphor Electrophoresis Unit, MultiTemp III Throstatic Circulator and EPS 3501 XL Power Supply.

Reproducibility and convenience, from separation to detection

Ready-made gels, buffers and buffer strips eliminate the need to prepare large volumes of buffer and the need to use for additional instrumentation. For convenience and improved reproducibility, precast gels are available for SDS-PAGE (ExcelGel™), IEF (Ampholine™ PAGplates, CleanGEL™ IEF and Immobiline™ DryPlate), while Immobiline DryStrip gels for first dimension separation and ExcelGel for second dimension are the ideal combination for successful 2-D PAGE.

For the transfer of proteins or peptides to immobilization membranes, the Multiphor II Electrophoresis Unit can be converted to a semi-dry blotting system by the simple addition of components from a NovaBlot™ Kit. Ready-to-use reagents, PlusOne™ Coomassie™ Tablets and the PlusOne Protein Silver Staining Kit ensure reliable staining results. Staining procedures can be performed automatically using the fluid delivery system, Processor Plus™.

Separations by native or SDS-PAGE

Multiphor II Electrophoresis System is compatible with ExcelGel precast gels for the separation of proteins or peptides according to size. Molecules can be separated on homogenous or gradient gels under native conditions or in the presence of SDS (Fig 2) when using ExcelGel SDS Buffer Strips. While precast gels improve reproducibility and reliability of results, a wide choice of high quality reagents is available to ensure that lab-cast gels also provide high quality results.

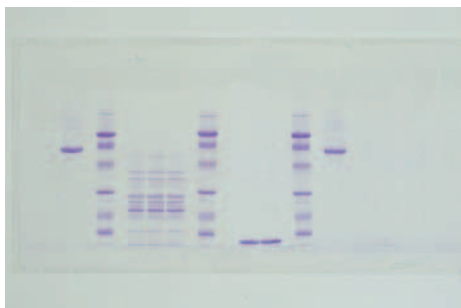


Fig 2. Purity check of recombinant human FKBP 12 binding protein on ExcelGel SDS Homogenous precast gel. Courtesy of Clare Hollis, Fisons plc, U.K.

Isoelectric focusing and 2-D PAGE

Isoelectric focusing (IEF) separates proteins according to differences in their isoelectric points (pI) and perhaps the most frequently used application of IEF today is for 2-D PAGE analysis in which proteins are first separated by their isoelectric points and then by size. A key advantage of the Multiphor II Electrophoresis System is that these first- and second-dimension separations can be performed using the same instrument. For the first dimension IEF, Immobiline DryStrip gels maximize resolution, loading capacity, and reproducibility, greatly improving the quality of 2-D electrophoresis results. When the Multiphor II Electrophoresis Unit is used together with an Immobiline DryStrip Kit, up to 12 IPG strips can be run simultaneously, with strip lengths up to 24 cm. To match the required pH gradient, IPG strips are available in a broad range of overlapping pH ranges and five strip lengths. Figure 3 gives a guideline to the selection of the most suitable IPG strip according to the pI range of interest.

Guidelines for choosing Immobiline DryStrip gels

pH range	pH range					Strip length					
	2	4	6	8	10	12	24 cm	18 cm	13 cm	11 cm	7 cm
3–5.6 NL		●	●				●	●	●	●	●
5.3–6.5			●	●			●	●	●	●	●
6.2–7.5				●	●		●	●	●	●	●
7–11 NL					●	●	●	●	●	●	●
3–11 NL	●	●	●	●	●	●	●	●	●	●	●
3.5–4.5		●	●				●	●			
4.0–5.0		●	●				●	●			
4.5–5.5		●	●				●	●			
5.0–6.0			●	●			●	●			
5.5–6.7			●	●			●	●			
3–7 NL	●	●	●				●				
4–7		●	●				●	●	●	●	●
6–9			●	●			●	●			
6–11				●	●			●	●	●	●
3–10	●	●	●	●	●		●	●	●	●	●
3–10 NL	●	●	●	●	●		●	●	●		●

Fig 3. Guidelines for the selection of IPG strips for the first dimension separation.

For reproducible results DeStreak™ Rehydration Solution, IPG Buffer and appropriate sample preparation chemicals, for example Urea, CHAPS, and DTT, are available. Figure 4 illustrates the simplicity of a first dimension separation. By using an Immobiline DryStrip Reswelling Tray, up to 12 strips can be rehydrated independently keeping the volumes of rehydration solution to a minimum. Samples can be loaded during rehydration by inclusion in the rehydration buffer. Alternatively, samples can be applied to the rehydrated strips via sample cups.

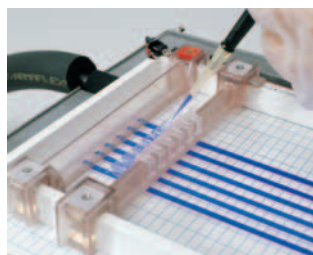
Focusing time depends on the IPG strip length, pH range, and the nature of the sample, but can be expected to be in the range of 2–72 hours. The linear voltage ramp mode of the EPS 3501 XL Power Unit quickly brings proteins to focused equilibrium without overheating. After separation, the Immobiline DryStrip Kit is removed to prepare the system for the second-dimension SDS-PAGE separation.



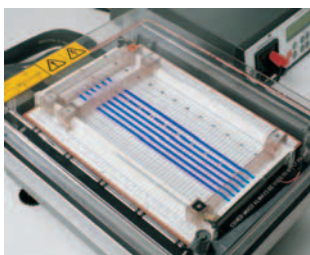
Rehydrate Immobiline DryStrip gels in a reswelling tray



Align strips on the bed using the Immobiline DryStrip Kit



Apply sample (up to 100 µl) by cup-loading, if not included during rehydration step



Run up to 12 IPG strips simultaneously

Fig 4. Simple steps for first dimension separation

Precast ExcelGel SDS gels include a 12.5% homogeneous gel and a 12–14% acrylamide gradient gel. Multiphor II Buffer Strip Positioner facilitates placement of ExcelGel Buffer Strips and holds the strips securely in place during the run. Both gels accept a single 24, 18, or 13 cm IPG strip, two 11 cm-strips, or three 7 cm-strips. Placing shorter Immobiline DryStrip gels end-to-end is ideal for comparative

studies. For maximum resolution, the largest ExcelGel in combination with the 24 cm or 18 cm Immobiline DryStrip gel is the best choice. The second dimension separation time depends on the set-up and the sample, but is usually less than 4 h. Figure 5 shows an example of multiple 2-D maps produced during a single run.

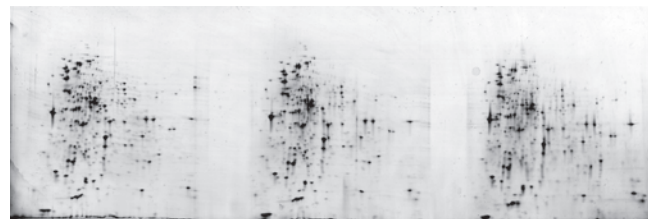


Fig 5. Three 2-D maps on ExcelGel 2-D Homogenous 12.5% using three 7 cm Immobiline DryStrip gels.

Multiphor II Electrophoresis System is also compatible with precast gels for IEF separation, including Ampholine PAGplates (supplied as fully hydrated, ready-to-use plastic-backed gels containing selected carrier ampholytes) and CleanGel gels (supplied dry for reswelling into the carrier ampholyte solution of choice). Figure 6 shows an example of IEF separations performed on an Ampholine PAGPlate.

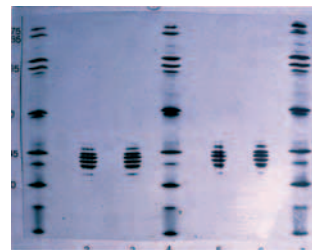


Fig 6. Quality control of murine IgG on Ampholine PAGPlate (courtesy of D. Murphy, Celltech Ltd., U.K.).

Reproducible staining and blotting

Consistent quality and optimized conditions are essential for reproducible staining. Coomassie R-350 tablets offer a simple, yet sensitive staining process that can be performed manually or automated using Processor Plus fluid delivery system (Fig 7). This instrument is an excellent complement to Multiphor II Electrophoresis System. For automated gel staining, tray sizes are available to accommodate 1–6 gels (up to 9 × 9.5 cm) or 1–2 gels (up to 16 cm × 16 cm). PlusOne Protein Silver Staining Kit (Fig 7) can give a 100-fold increase compared to Coomassie. Stained gels, with colorless background, can be ready within two hours.



Fig 7. Processor Plus for automated staining and PlusOne Protein Silver Staining Kit

Semi-dry blotting: NovaBlot

By adding components from NovaBlot Kit, Multiphor II Electrophoresis System is converted to enable semi-dry electrophoretic transfer of proteins from the electrophoresis medium to the immobilization membrane. A Film Remover is used to remove the plastic backing from precast media prior to transfer. The final set-up and the individual components are shown in figure 8. Graphite electrodes provide an even distribution of current across the entire surface, ensuring uniform transfer. One gel 24×18 cm or four gels 12×8 cm can be processed in a single run, with the power supply delivering up to 400 mA (equal 0.8 mA/cm^2 .) For most proteins, transfer is achieved within 60 minutes. After transfer, proteins can be visualized using general or specific detection methods.

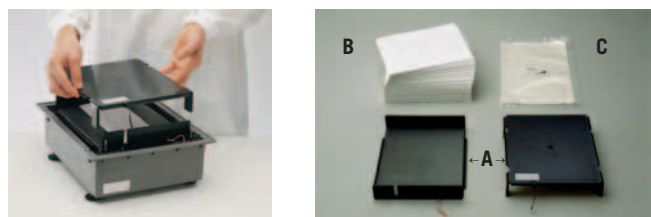


Fig 8. Multiphor II Electrophoresis System prepared for semi-dry blotting. NovaBlot Kit components include **A.** NovaBlot electrodes, cathode and anode, **B.** Electrode paper NovaBlot and **C.** Cellophane sheets.

Literature

- SDS Polyacrylamide Gel Electrophoresis and Isoelectric Focusing (80-6013-88)
- Everything for Electrophoresis (80-9494-01)
- 2-D Electrophoresis using immobilized pH gradients, Principles and Methods (80-6429-60)
- IPG Strips 18-1177-60

Technical Specifications

Safety certification for Multiphor II, MultiTemp III (230 V), NovaBlot, Processor Plus CE 89/336/EEC (EMC directive), CE 73/23/EEC (LV directive), EN-61010-1 (IEC1010-1, UL3101-1, CSA22.2 1010-1).

Technical specifications:

Multiphor II Electrophoresis Unit

Capacity IEF	up to 12 IPG strips with Immobiline DryStrip Kit
Dimensions	7, 11, 13, 18 or 24 cm Immobiline DryStrip
Capacity native, SDS-PAGE or 2-D SDS-PAGE	1 gel
Dimensions	0.5 × 24 × 18 cm (ExcelGel 12–14) 0.5 × 24 × 11 cm (ExcelGel 2-D, 12.5), see EPS 3501 XL Power Unit
Programmable parameters	
Operating conditions	4–40 °C
Humidity	20–95%
Maximum power	100 W
Maximum voltage	3500 Vp-p (± 1750 V with reference to ground)
Cooling plate	Aluminium oxide, 21 × 27 cm (l × w)
Maximum pressure on cooling plate	0.5 bar
Chemical resistance	Avoid concentrated acids and bases, halogenated and aromatic hydrocarbons.
Dimensions	16 × 31 × 40 cm (h × w × d)
Weight	7 kg

Technical specifications:**EPS 3501XL Power Unit**

Power requirements	100–120 V/220–240 V, 50/60 Hz, 260 W
Current resolution	1 μ A
Programs stored	9 protocols, 9 phases each

Programmable parameters

Current	1–400 mA
Voltage	35–3 500 V, 5V increments
Power	1–200 W
Timer, run end	1 min–500 h (continuous), 1Vh–500 kWh, 1 mAhr–25 Ahr
Output connector	2 mm
Safety features	overload/short circuit protection, ground leakage detection, no-load detection
Dimensions	250 × 315 × 95 mm
Weight	3.8 kg

Technical specifications:**MultiTemp III Thermostatic Circulator**

Working temperature range	–10–90 °C
Operating temperature range	4–40 °
Temperature control constancy	< \pm 0.1 °C at 20 °C
Range of temperature limit switch	20–95 °C
Heater capacity	800 W
Cooling capacity, 115 VAC	240 W at 20 °C, 200 W at 5 °C
Cooling capacity, 230 VAC	265 W at 20 °C, 215 W at 5 °C
Compressor coolant	KLEA 134a (Specifications for 20 °C ambient temp.)
Bath volume	3 liters
Pump capacity, pressure	\approx 0.32 bar
Pump capacity, flow rate	\approx 12 litres/min
Line voltage	95–132 VAC, 60 Hz 95–125 VAC, 50 Hz 198–253 VAC, 50 Hz
Power consumption	1200 W
Maximum operating ambient humidity	80% at 31 °C 50% at 40 °C
Dimensions	22 × 42 × 48 cm
Weight	28 kg

Technical specifications:**Multiphor NovaBlot**

Gel dimensions	25 × 20 cm
Capacity	1 gel 25 × 20 2 gels 12 × 25 4 gels 12 × 8
Transfer time	1 h
Buffer volume	200 ml
Power supply	400 mA 200 V
Current	0.8 mA/cm ²
Power	80 W
Electrodes	graphite

Technical specifications:**Processor Plus****Staining**

Gel dimensions	16 × 26 cm or 2 gels 12 × 12 cm, with 19 × 29 cm tray 28 × 26 cm or 6 gels 9 × 9.5 cm or 2 × 16 cm, with 29 × 35 cm tray
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Technical specifications:**ExcelGel and Buffer Strips**

Materials	Polyacrylamide on plastic backing + buffer (ExcelGel) polyacrylamide + buffer (Buffer Strips)
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Technical specifications:

ExcelGel	ExcelGel Gradient XL 12-14	ExcelGel Gradient 8-18	ExcelGel Homogeneous 7.5	ExcelGel Homogeneous 12.5	ExcelGel Homogeneous 15
Separation range ($M_r \times 10^3$)	12-116	15-200	35-200	15-40	3-8
Gel description					
Dimensions (mm – W × L × T)	245 × 180 × 0.5	245 × 110 × 0.5	250 × 110 × 0.5	250 × 110 × 0.5	250 × 110 × 0.5
Stacking zone (% T/% C)	40, 5/3	5/3	5/3	6/3	7.5/3
Separating zone (% T/% C)	140, 12-14/3	8-18/3	7.5/3	12.5/2	15/3
Buffer	C	A	A	A (2D=C)	B
Storage temperature (°C)	4-30	20-30	4-8	4-8	4-8

Buffers

A: Tris/HAC, pH 6.4

B: As in A plus ethylene glycol

C: Tris/MAC pH 6.6, 0.1% SDS

Buffer Strips (anode and cathode)

Size 245 × 45 mm

Storage 4-8 °C

Anode buffer: Tris-acetate, pH 6.4, 0.4% SDS

Cathode buffer: Tris-tricine, pH 7.1, 0.4% SDS

Technical specifications:**Immobiline DryStrip gels**

Composition	Dry gels cast on polyester backing Polyacrylamide (T=4 %, C=3 %)
Dimensions	Thickness: 0.5 mm after rehydration Width: 3 mm Length: 70, 110, 130, 180, and 240 mm
Storage	-20 °C, maximum 18 months

Multiphor II runs any IPG strip up to 24 cm in length, but only 18 cm strips or less can be used for 2D PAGE separations

Technical specifications:**Staining reagents****Coomassie R-350 dye in tablet format**

Typical sensitivity 0.2-1 µg depending on protein

Time to result: Within 2 hours using Processor Plus

PlusOne Protein Silver Staining Kit

Reagents and development protocol optimized for

Typical sensitivity: 1 ng

Time to result: 3 h

Ordering information

	Quantity	Code no.
Multiphor System components		
Multiphor II Electrophoresis Unit	1	18-1018-06
Includes four chamber, polypropylene buffer tank, ceramic cooling plate, safety lid with high voltage leads, anode and cathode EPH/IEF electrodes, leveling feet, cooling tube 4 m, tubing connector set, electrode holder, grommets, hose clamps, Electrophoresis in Practice Handbook, R. Westermeier		
Related products		
MultiTemp III	115 V	1 18-1102-77
Thermostatic Circulator		
MultiTemp III	230 V	1 18-1102-78
Thermostatic Circulator		
EPS 3501 XL Power Supply	1	18-1130-05
Accessories for IEF		
Immobiline DryStrip Kit	1	18-1004-30
Immobiline DryStrip Reswelling	1	80-6371-84
Tray for 7-18 cm IPG strips		
Immobiline DryStrip Reswelling	1	80-6465-32
Tray for 7-24 cm IPG strips		

	Quantity	Code no.
Multiphor II Buffer		80-6442-90
Strip Positioner, complete		
Immobiline DryStrip Cover Fluid	1 l	17-1335-01
Strip Positioner, complete		
Accessories for lab-cast gels		
SDS and native PAGE, IEF Casting Kit		18-1102-45
Reswelling Cassette		18-1013-74
Gradient maker		18-1013-72
FlexiClamps	6	18-1013-73
Roller	1	80-1106-79
NovaBlot		
NovaBlot Kit	1	18-1016-86
Electrode paper NovaBlot, 200 × 250 mm,	500	80-1106-19
NovaBlot electrode, anode	1	80-1257-87
NovaBlot electrode, cathode	1	18-1019-86
Cellophane sheets (210 × 320 mm)	50	80-1129-38

	Quantity	Code no.
IPG Buffer		
Ampholyte concentrate in aqueous solution		
IPG Buffer pH 3.5–5.0	1 ml	17-6002-02
IPG Buffer pH 4.5–5.5	1 ml	17-6002-04
IPG Buffer pH 5.0–6.0	1 ml	17-6002-05
IPG Buffer pH 5.5–6.7	1 ml	17-6002-06
IPG Buffer pH 4–7	1 ml	17-6000-86
IPG Buffer pH 6–11	1 ml	17-6001-78
IPG Buffer pH 7–11 NL	1 ml	17-6004-39
IPG Buffer pH 3–10 NL	1 ml	17-6000-88
IPG Buffer pH 3–10	1 ml	17-6000-87
IPG Buffer pH 3–11 NL	1 ml	17-6004-40

	Quantity	Code no.
Precast IEF gels		
Immobiline DryStrip gels, 24 cm		
Immobiline DryStrip pH 3–5.6 NL, 24 cm	12	17-6003-57
Immobiline DryStrip pH 5.3–6.5, 24 cm	12	17-6003-62
Immobiline DryStrip pH 6.2–7.5, 24 cm	12	17-6003-67
Immobiline DryStrip pH 7–11 NL, 24 cm	12	17-6003-72
Immobiline DryStrip pH 3–11 NL, 24 cm	12	17-6003-77
Immobiline DryStrip pH 3.5–4.5, 24 cm	12	17-6002-38
Immobiline DryStrip pH 4.0–5.0, 24 cm	12	17-6002-39
Immobiline DryStrip pH 4.5–5.5, 24 cm	12	17-6002-40
Immobiline DryStrip pH 5.0–6.0, 24 cm	12	17-6002-41
Immobiline DryStrip pH 5.5–6.7, 24 cm	12	17-6002-42
Immobiline DryStrip pH 3–7 NL, 24 cm	12	17-6002-43
Immobiline DryStrip pH 4–7, 24 cm	12	17-6002-46
Immobiline DryStrip pH 6–9, 24 cm	12	17-6002-47
Immobiline DryStrip pH 3–10 NL, 24 cm*	12	17-6002-45
Immobiline DryStrip pH 3–10, 24 cm	12	17-6002-44

Immobiline DryStrip gels, 18 cm		
Immobiline DryStrip pH 3–5.6 NL, 18 cm	12	17-6003-56
Immobiline DryStrip pH 5.3–6.5, 18 cm	12	17-6003-61
Immobiline DryStrip pH 6.2–7.5, 18 cm	12	17-6003-66
Immobiline DryStrip pH 7–11 NL, 18 cm	12	17-6003-71
Immobiline DryStrip pH 3–11 NL, 18 cm	12	17-6003-76
Immobiline DryStrip pH 3.5–4.5, 18 cm	12	17-6001-83
Immobiline DryStrip pH 4.0–5.0, 18 cm	12	17-6001-84
Immobiline DryStrip pH 4.5–5.5, 18 cm	12	17-6001-85
Immobiline DryStrip pH 5.0–6.0, 18 cm	12	17-6001-86
Immobiline DryStrip pH 5.5–6.7, 18 cm	12	17-6001-87
Immobiline DryStrip pH 4–7, 18 cm	12	17-1233-01
Immobiline DryStrip pH 6–9, 18 cm	12	17-6001-88
Immobiline DryStrip pH 6–11, 18 cm	12	17-6001-97
Immobiline DryStrip pH 3–10 NL, 18 cm*	12	17-1235-01
Immobiline DryStrip pH 3–10, 18 cm	12	17-1234-01

Immobiline DryStrip gels, 13 cm		
Immobiline DryStrip pH 3–5.6 NL, 13 cm	12	17-6003-55
Immobiline DryStrip pH 5.3–6.5, 13 cm	12	17-6003-60
Immobiline DryStrip pH 6.2–7.5, 13 cm	12	17-6003-65

	Quantity	Code no.
Immobiline DryStrip pH 7–11 NL, 13 cm	12	17-6003-70
Immobiline DryStrip pH 3–11 NL, 13 cm	12	17-6003-75
Immobiline DryStrip pH 4–7, 13 cm	12	17-6001-13
Immobiline DryStrip pH 6–11, 13 cm	12	17-6001-96
Immobiline DryStrip pH 3–10 NL, 13 cm*	12	17-6001-15
Immobiline DryStrip pH 3–10, 13 cm	12	17-6001-14

Immobiline DryStrip gels, 11 cm

Immobiline DryStrip pH 3–5.6 NL, 11 cm	12	17-6003-54
Immobiline DryStrip pH 5.3–6.5, 11 cm	12	17-6003-59
Immobiline DryStrip pH 6.2–7.5, 11 cm	12	17-6003-64
Immobiline DryStrip pH 7–11 NL, 11 cm	12	17-6003-69
Immobiline DryStrip pH 3–11 NL, 11 cm	12	17-6003-74
Immobiline DryStrip pH 4–7, 11 cm	12	18-1016-60
Immobiline DryStrip, pH 6–11, 11 cm	12	17-6001-95
Immobiline DryStrip pH 3–10, 11 cm	12	18-1016-61

Immobiline DryStrip gels, 7 cm

Immobiline DryStrip pH 3–5.6 NL, 7 cm	12	17-6003-53
Immobiline DryStrip pH 5.3–6.5, 7 cm	12	17-6003-58
Immobiline DryStrip pH 6.2–7.5, 7 cm	12	17-6003-63
Immobiline DryStrip pH 7–11 NL, 7 cm	12	17-6003-68
Immobiline DryStrip pH 3–11 NL, 7 cm	12	17-6003-73
Immobiline DryStrip pH 4–7, 7 cm	12	17-6001-10
Immobiline DryStrip pH 6–11, 7 cm	12	17-6001-94
Immobiline DryStrip pH 3–10 NL, 7 cm*	12	17-6001-12
Immobiline DryStrip pH 3–10, 7 cm	12	17-6001-11

* Increased resolution between pH 5–7.

	Quantity	Code no.
Precast IEF gels and buffers		
Ampholine, preblended pH 3.5–9.5	25 ml	80-1127-15
Ampholine, preblended pH 4.0–6.5	25 ml	80-1127-17
Ampholine, preblended pH 5.0–8.0	25 ml	80-1127-19
Ampholine, broad range pH 3.5–10.0	25 ml	80-1125-87
Ampholine, narrow range pH 3.5–5.0	25 ml	80-1125-89
Ampholine, narrow range pH 4.0–6.0	25 ml	80-1125-90
Ampholine, narrow range pH 5.0–7.0	25 ml	80-1125-91
Ampholine, narrow range pH 5.0–8.0	25 ml	80-1125-92
Ampholine, narrow range pH 6.0–8.0	25 ml	80-1125-93
Ampholine, narrow range pH 7.0–9.0	25 ml	80-1125-94
CleanGel IEF	5	18-1035-32
CleanGel IEF electrode strips	12	18-1035-33
Ampholine, preblended pH 3.5–9.5	25 ml	80-1127-15
Ampholine, preblended pH 4.0–6.5	25 ml	80-1127-17
Ampholine, preblended pH 5.0–8.0	25 ml	80-1127-19
Ampholine, broad range pH 3.5–10.0	25 ml	80-1125-87
Ampholine, narrow range pH 3.5–5.0	25 ml	80-1125-89
Ampholine, narrow range pH 4.0–6.0	25 ml	80-1125-90
Ampholine, narrow range pH 5.0–7.0	25 ml	80-1125-91
Ampholine, narrow range pH 5.0–8.0	25 ml	80-1125-92
Ampholine, narrow range pH 6.0–8.0	25 ml	80-1125-93
Ampholine, narrow range pH 7.0–9.0	25 ml	80-1125-94

	Quantity	Code no.
Precast gels: SDS-PAGE		
ExcelGel 2-D Homogeneous 12.5	6	17-6002-21
ExcelGel Gradient XL 12-14	3	17-1236-01
ExcelGel SDS Buffer Strips, (anode and cathode)	6 pairs	17-1342-01
ExcelGel SDS Gradient 8-18	6	80-1255-53
ExcelGel SDS Homogeneous 7.5	6	80-1260-01
ExcelGel SDS Homogeneous 12.5	6	80-1261-01
ExcelGel SDS Homogeneous 15	6	80-1262-01

	Quantity	Code no.
PlusOne casting chemicals, buffers, and reagents		
PlusOne Acrylamide PAGE	250 g	17-1302-01
PlusOne Acrylamide PAGE	1 kg	17-1302-02
PlusOne Acrylamide IEF	250 g	17-1300-01
PlusOne Acrylamide PAGE 40% solution	1 l	17-1303-01
PlusOne Acrylamide IEF 40% solution	1 l	17-1301-01
PlusOne N,N'-Methylene- bisacrylamide	25 g	17-1304-01
PlusOne TEMED	25 ml	17-1312-01
PlusOne Ammonium Persulfate	25 g	17-1311-01
PlusOne Glycine	500 g	17-1323-01
CHAPS	1 g	17-1314-01
Triton X-100	500 ml	17-1315-01
Tris	500 g	17-1321-01
Urea	500 g	17-1319-01
Glycerol 87%	1 l	17-1325-01
Sodium Dodecylsulfate (SDS)	100 g	17-1313-01
Dithiothreitol (DTT)	1 g	17-1318-01
Bromophenol Blue	10 g	17-1329-01
Agaroses		see catalog for full selection
DeStreak Rehydration Solution	5 × 3 ml	17-6003-19
DeStreak Reagent	1 ml	17-6003-18

	Quantity	Code no.
Staining Instruments and Kits		
Processor Plus Base Unit	1	80-6444-04
Blot Processing Tray Pack	1	80-6444-23
Staining Tray Pack 19 × 29 cm	1	80-6444-80
Staining Tray Pack 29 × 35 cm	1	80-6445-18
PlusOne Coomassie Tablets PhastGel Blue R-350	40 tablets	17-0518-01
PlusOne Silver Staining Kit, Protein	1	17-1150-01

	Quantity	Code no.
Protein molecular weight markers		
LMW-SDS Marker Kit	10 vials 575 µg/vial	17-0446-01
Peptide Marker Kit	1 vial 2 mg/vial	80-1129-83
HMW-SDS Marker Kit	10 vials 175 µg/vial	17-0615-01
HMW-Native Marker Kit	10 vials 250 µg/vial	17-0445-01
pI markers		
Broad pI Kit, pH 3-10	10 vials	17-0471-01
Low pI Kit, pH 2.5-6.5	10 vials	17-0472-01
High pI Kit, pH 5-10.5	10 vials	17-0473-01
Carbamylate Calibration Kit	1	17-0582-01

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