TECHNICAL NOTES

SERVALYT™ Carrier Ampholytes

SERVA
serving scientists

For Isoelectric Focusing

Carrier Ampholytes

Ampholytes are low molecular weight molecules of zwitterionic character. They are derived synthetically and comprise a multitude of varying pI-values. In agarose and polyacrylamide gels containing ampholytes, a linear pH-gradient will be built up 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).



To achieve good separation of protein bands by IEF, stable pH-gradients with extensive and consistent buffer capacity are required. Good ampholyte mixtures comprise low molecular weight species of different pI-values which contribute to conductivity, an important criterion to yield reliable results and excellent reproducibility.

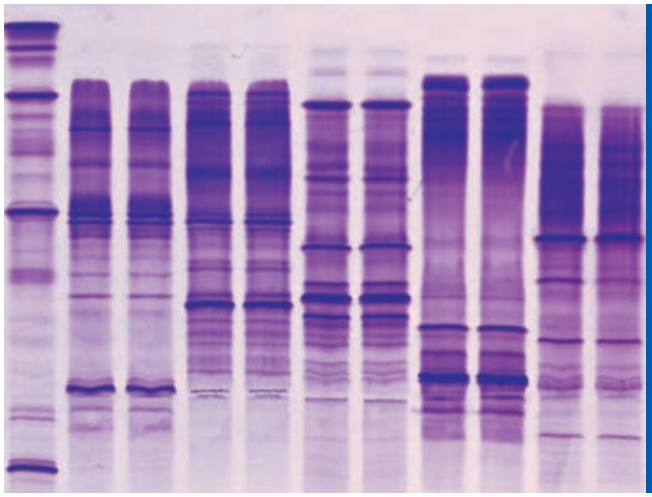
For optimal resolution, the pI-range may be varied via the composition of the carrier ampholyte mixture in order to adjust the slope of the pH-gradient along the separation distance. Moreover, admixing narrow pH-cuts broadens the resulting pH-gradient which may improve the separation. This is particularly useful when complex samples are to be resolved featuring a »pI-focus«.

Benefits of SERVALYT™ Carrier Ampholytes

SERVALYT™ carrier ampholytes are producedaccording to the highest quality standards and arerouti-nely tested for performance.

Many criteria contribute to excellence of separation: linearity of the gradient formed by the ampholyte throughout a gel, good conductivity at the isoelectric point and consistent staining/destaining characteristics. Overall performance is judged by the final pherogramm.

- high resolution due to multimeric composition
- fast staining and destaining times
- clear background associated with very low
- unspecific binding of dyes and stains
- high solubility in trichloroacetic acid
- (fast removal of ampholytes during fixation)
- virtually no interaction with metal ions



Isoelectric focusing of different meat samples using SERVALYT™ 6-9 (Cat. No. 42913)

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Ready-to-use or preblending?

Wide range (spanning more than 3 pH units) and narrow range (spanning less than 3 pH units) SERVALYT™ fractions are ready-to-use. Generally, blending with other pH-fractions is not required but some exceptions apply which are important to know. Very acidic (pH 2-4) and very basic ampholytes (pH 7-9/9-11) may cause problems in polymerization. We advise to add 20 % SERVALYT™ 3-10 (Cat. No. 42940). Prior to casting, simply mix 8 ml of acidic or basic SERVALYT™ with 2 ml of wide range SERVALYT™. Moreover, the admixture assists at the edges of the gradient where strong pH-differences are built up between the electrode solutions in use and the ampholyte gradient. Ampholyte fractions spanning 1 pH unit are recommended to preblending. Depending on the choice of anode and cathode buffers sharp differences in pH may occur close to the edges of a gel (they could cause burning out and shunts). Add 20 % of the wide range SERVALYT™ 3-10 which will provide a smoother transition at the cathodic and anodic ends.

Product usage and application

All SERVALYT™ are suited to prepare any gel for isoelectric focusing made of polyacrylamide or agarose. The common working concentration is in the range of 3 % to 5 %.

Technical grade SERVALYT™ carrier ampholyte pH 4-9 T (Cat. No. 42910) is economical to use if preparative work is envisaged. The »T« grade SERVALYT™ is not sterile filtered.

SERVALYT™ 3-10 IsoDalt (Cat. No. 42951) is particularly suited to 2D-electrophoresis. Gels can be prepared in glass tubes or in horizontal gel format (upon completion of IEF the gel is cut into strips applied to the second dimension [SDS PAGE]).

SERVALYT™ ampholytes are also suited for rehydration of dry IPG gel strips in 2DGE, e.g. SERVA IPG BlueStrips, for more information see www.serva.de.

SERVALYT™ ampholytes are also applicable to medium-free IEF systems, e. g. free flow electrophoresis and capillary electrophoresis

SERVALYT™ 4.2 – 4.9 is mainly applied in analysis of genetic variants of α_1-Antitrypsin by IEF.

Ordering Information

Product	Quantity	Cat. no.
SERVALYT™ 2 - 4	10 ml	42902.01
	25 ml	42902.02
SERVALYT™ 2 - 11	10 ml	42900.01
	25 ml	42900.02
"SERVALYT™ 2 - 9 Seed-Mix"	10 ml	42935.01
	25 ml	42935.02
	100 ml	42935.03
SERVALYT™ 3 - 4	10 ml	42922.01
	25 ml	42922.02
SERVALYT™ 3 - 5	10 ml	42903.01
	25 ml	42903.02
SERVALYT™ 3 - 6	10 ml	42944.01
	25 ml	42944.02
SERVALYT™ 3 - 7	10 ml	42945.01
	25 ml	42945.02
SERVALYT™ 3 - 10	10 ml	42940.01
	25 ml	42940.02
"SERVALYT™ 3 - 10 Iso-Dalt for 2D"	10 ml	42951.01
	25 ml	42951.02
SERVALYT™ 4 - 5	10 ml	42923.01
	25 ml	42923.02
SERVALYT™ 4 - 6	10 ml	42904.01
	25 ml	42904.02
SERVALYT™ 4 - 7	10 ml	42948.01
	25 ml	42948.02
SERVALYT™ 4.2 - 4.9	10 ml	42926.01
	25 ml	42926.02
SERVALYT™ 5 - 6	10 ml	42924.01
	25 ml	42924.02
SERVALYT™ 5 - 7	10 ml	42905.01
	25 ml	42905.02
SERVALYT™ 5 - 7 PGM	10 ml	42936.01
	25 ml	42936.02
SERVALYT™ 5 - 8	10 ml	42949.01
	25 ml	42949.02
SERVALYT™ 5 - 9	10 ml	42950.01
	25 ml	42950.02
SERVALYT™ 6 - 7	10 ml	42925.01
	25 ml	42925.02
SERVALYT™ 6 - 8	10 ml	42906.01
	25 ml	42906.02
SERVALYT™ 6 - 9	10 ml	42913.01
	25 ml	42913.02
SERVALYT™ 7 - 9	10 ml	42907.01
	25 ml	42907.02
SERVALYT™ 9 - 11	10 ml	42909.01
	25 ml	42909.02
SERVALYT™ 4 - 9T	10 ml	42910.01
	25 ml	42910.02
	100 ml	42910.03

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