

# Compare Precise™ Protein Gels for electrophoretic resolution of Pierce molecular weight markers

TR0048.1

## Introduction

Presented in this Tech Tip are photographs of actual gels in which Pierce molecular weight marker mixes have been resolved by electrophoresis in the several different pre-cast, polyacrylamide gels offered by Pierce. In each panel the migration patterns of a particular marker mix product resolved in each concentration of Precise™ Protein Gel are displayed side by side. Comparison of the general appearance and resolution of these migration patterns may aid in choosing the appropriate gel and marker type for a given application.

### A. Protein Gel Electrophoresis

Electrophoretic separation of proteins is an analytical technique of unrivalled resolving power and exceptional versatility. The most commonly used protein electrophoresis technique is SDS-PAGE (sodium dodecyl sulfate polyacrylamide gel electrophoresis), wherein SDS treatment ensures that proteins migrate primarily according to molecular weight (MW). The range of protein molecular weights resolved in SDS-PAGE is determined by the percent concentration of polyacrylamide used to cast the gel. Higher percent gels resolve smaller MW proteins; low percent gels resolve large MW proteins.

### B. Precise™ Protein Gels

Precise™ Protein Gels are precast 1 mm-thick mini gels for SDS-PAGE that use a unique Tris-HEPES-SDS running buffer to improve band resolution and decrease run-time compared to traditional gel types. Cast in a stable, neutral buffer, Precise™ Gels yield excellent results throughout their entire 12-month shelf life. The gels are individually packaged in an easy-to-open plastic pouch and are ready to use, with no comb or tape to remove. Precise™ Protein Gels are available in gradient (4-20% and 8-16%) and fixed (8%, 10% and 12%) concentrations and in 10, 12 and 15-well formats (See Related Pierce Products).

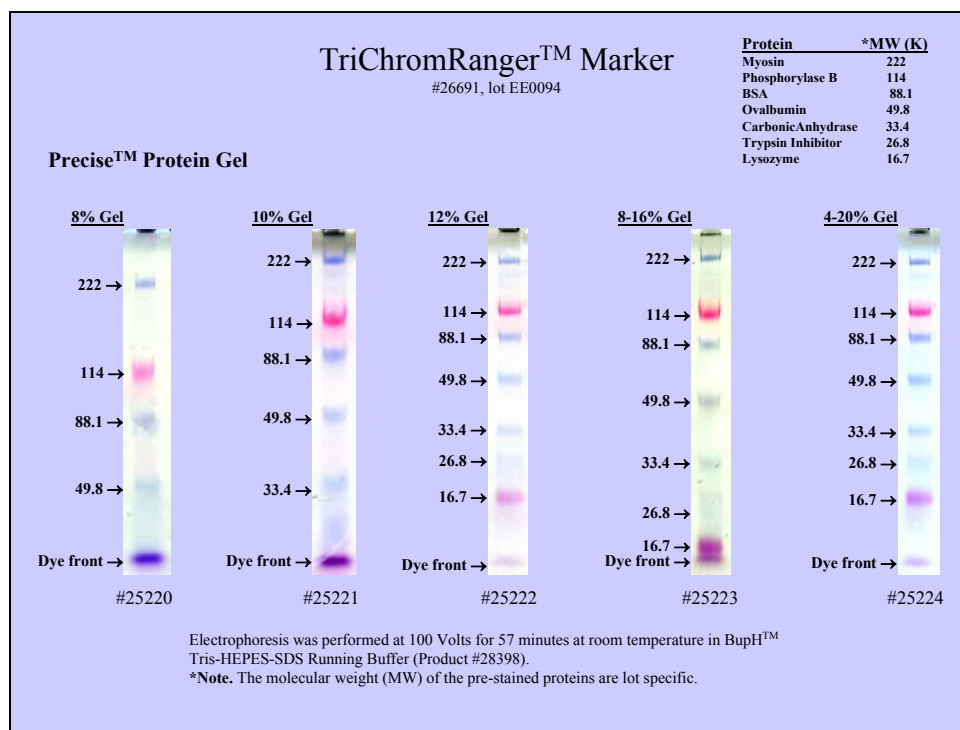
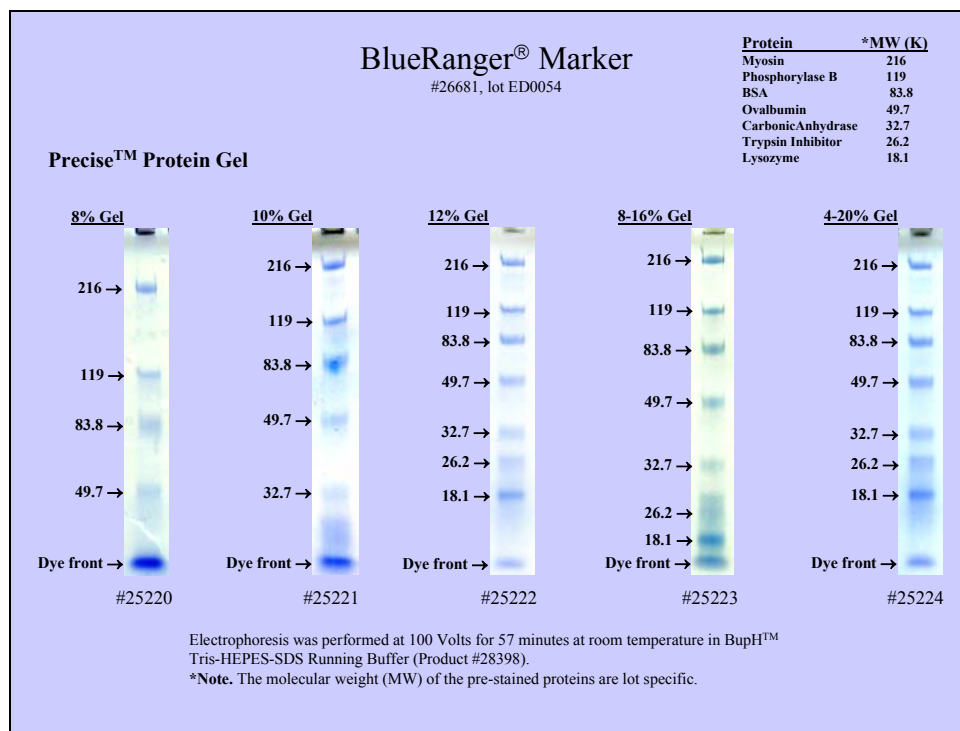
### C. Pierce Molecular Weight Marker Mixes

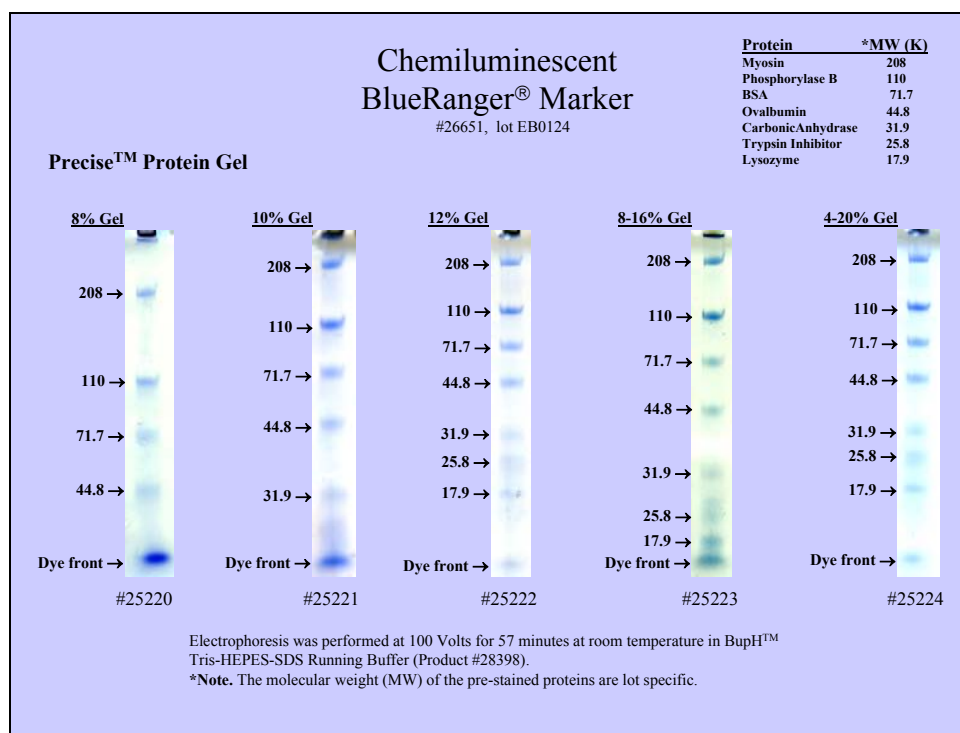
Pierce offers four protein MW marker mix products. (Product names and numbers are indicated in the following figures and listed in the Related Pierce Products section). These unique mixes of seven proteins (nine in the case of the unstained marker) are packaged as dried, single-use aliquots in foil-sealed, 1 × 48-well microtube plates. The markers, which are already reduced in sample loading buffer, are ready to load immediately after puncturing through the foil cover of one microtube and dissolving the pellet in 10 µl of water.

### D. Interpreting Migration Tables

The instructions for the Precise™ Protein Gels contain a diagrammatic migration table as a general guide for selecting a gradient- or fixed- concentration gel appropriate for one's needs. Choose a gel type that provides the best resolution (widest separation) of molecular weights corresponding to the protein(s) being investigated.

However, it is also helpful to see actual migration tables for specific MW markers. For example, the three lowest MW proteins do not resolve from each other or the dye front in an 8% gel. Photographs of actual gels display these migration patterns more clearly than a generic and diagrammatic table. Presented in this Tech Tip are migration tables for each Pierce MW marker mix electrophoresed in all fixed and gradient Precise™ Protein Gels using reducing conditions.





## Related Pierce Products

### Precise™ Protein Gels

Product Number	% Acrylamide	Running Buffer	Cassette Size	Wells	Well Volume	Separation Range (kDa)
25200	8	Tris-HEPES-SDS	100 × 85	10	50 µl	205-45
25201	10	Tris-HEPES-SDS	× 4.5 mm	10	50 µl	205-24
25202	12	Tris-HEPES-SDS		10	50 µl	205-14
25203	8-16	Tris-HEPES-SDS		10	50 µl	205-14
25204	4-20	Tris-HEPES-SDS		10	50 µl	205-6.5
25220	8	Tris-HEPES-SDS	100 × 85	12	30 µl	205-45
25221	10	Tris-HEPES-SDS	× 4.5 mm	12	30 µl	205-24
25222	12	Tris-HEPES-SDS		12	30 µl	205-14
25223	8-16	Tris-HEPES-SDS		12	30 µl	205-14
25224	4-20	Tris-HEPES-SDS		12	30 µl	205-6.5
25240	8	Tris-HEPES-SDS	100 × 85	15	25 µl	205-45
25241	10	Tris-HEPES-SDS	× 4.5 mm	15	25 µl	205-24
25242	12	Tris-HEPES-SDS		15	25 µl	205-14
25243	8-16	Tris-HEPES-SDS		15	25 µl	205-14
25244	4-20	Tris-HEPES-SDS		15	25 µl	205-6.5

### Protein Molecular Weight Marker Mixes

26681	BlueRanger® Prestained Protein Molecular Weight Marker Mix
26691	TriChromRanger® Prestained Protein Molecular Weight Marker Mix
26651	Chemiluminescent BlueRanger® Prestained Peroxidase-Labeled Protein MW Marker Mix

### Lane Marker Sample Buffers

39000	ImmunoPure® Lane Marker Reducing Sample Buffer (5X), 5 ml
39001	ImmunoPure® Lane Marker Non-Reducing Sample Buffer (5X), 5 ml