



3050 Spruce Street  
Saint Louis, Missouri 63103 USA  
Telephone 800-325-5832 • (314) 771-5765  
Fax (314) 286-7828  
email: [techserv@sial.com](mailto:techserv@sial.com)  
[sigma-aldrich.com](http://sigma-aldrich.com)

## Product Information

### SigmaMarker™

**High Molecular Weight Range**, Product No. **M 3788**  
**Low Molecular Weight Range**, Product No. **M 3913**  
**Wide Molecular Weight Range**, Product No. **M 4038**

### Product Description

High, Low, and Wide molecular weight range SigmaMarker™ protein standards are specially designed for use in the PhastSystem™ electrophoresis work station and in standard Laemmli SDS-PAGE systems. The High Molecular Weight Range SigmaMarker contains eight proteins from 36-205 kDa. The Low Molecular Weight Range SigmaMarker contains eight proteins from 6-66 kDa. The Wide Molecular Weight Range SigmaMarker contains thirteen proteins from 6-205 kDa. When using the Wide Molecular Weight Range SigmaMarker, gradient gels are recommended.

Reconstitution with 100 µl of deionized water results in a solution containing approximately 2-3.5 mg of protein per ml of 62 mM Tris base, pH 8.0, 1 mM EDTA, 3% sucrose, 0.5% dithiothreitol, 2% SDS, and 0.005% bromophenol blue.

### Storage/Stability

Store the lyophilized powder desiccated at 2-8 °C. After reconstitution, store below –20 °C. Repeated freezing and thawing of reconstituted SigmaMarkers is not recommended.

### Preparation Instructions

#### Preparation of Markers and Instructions for Use

1. To prepare the marker for application to gels that will be stained with Brilliant Blue, reconstitute each vial with 100 µl of deionized water. Vortex for a few seconds to ensure the material is completely dissolved. Immediately aliquot and freeze the unused portions.
2. To prepare the marker for application to gels that will be silver stained, dilute the reconstituted marker (from step 1) 1:5 (v/v) with 20% glycerol solution.
3. Select an appropriate marker loading volume specific for the type of gel system to be used (see Table 1).

**Note:** Heating of the reconstituted marker is not recommended.

**Note:** For complete separation of the low molecular weight protein standards, it is recommended to use a 4-20% gradient gel or a homogeneous gel of greater than 15%.

**Table 1.**  
Recommended Marker Volumes for Various Types of Gel Systems

Type of Gel System	Recommended Marker Volume
PhastGel® Medium	1 µl
SDS-Laemmli Mini gel (10 x 8 cm)	3-5 µl
SDS-Laemmli Large gel (18 x 16 cm)	5-10 µl

**Table 2.**  
Molecular Weight Distributions in SigmaMarkers

Proteins	Molecular Weight	High (M 3788)	Wide (M 4038)	Low (M 3913)
Myosin, rabbit muscle	205,000	X	X	
$\beta$ -Galactosidase, <i>E. coli</i>	116,000	X	X	
Phosphorylase b, rabbit muscle	97,000	X	X	
Fructose-6-phosphate Kinase, rabbit muscle	84,000	X	X	
Albumin, bovine serum	66,000	X	X	X
Glutamic Dehydrogenase, bovine liver	55,000	X	X	
Ovalbumin, chicken egg	45,000	X	X	X
Glyceraldehyde-3-phosphate Dehydrogenase, rabbit muscle	36,000	X	X	X
Carbonic Anhydrase, bovine erythrocytes	29,000		X	X
Trypsinogen, bovine pancreas	24,000		X	X
Trypsin Inhibitor, soybean	20,000		X	X
$\alpha$ -Lactalbumin, bovine milk	14,200		X	X
Aprotinin, bovine lung	6,500		X	X

PhastSystem is a trademark of Amersham Biosciences.  
PhastGel is a registered trademark of Amersham Biosciences.

MAM/PCS 9/03

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.