



MP Biomedicals, LLC

29525 Fountain Parkway  
Solon, Ohio 44139

Telephone: 440/337-1200  
Toll Free: 800/854-0530  
Fax: 440/337-1180  
mailto: [biotech@mpbio.com](mailto:biotech@mpbio.com)  
web: <http://www.mpbio.com>

## TECHNICAL INFORMATION

Catalog Number: 1213449, 1213454

### Minimum Essential Medium Eagle (Modified) (1X Solution) with Hank's Salts, 20 mM HEPES, without L-glutamine, sodium bicarbonate

**Description:** MEM, originally prepared by Harry Eagle, is one of the most popular cell culture media. Upon his attempts to cultivate normal mammalian fibroblasts and certain HeLa cell subtypes, it was revealed that the nutritional needs of these cell types could not be met by BME. Further studies led to the development of MEM incorporating specific modifications such as higher amino acid concentrations for the cultivation of fastidious cells. MP's MEM may be used to support the growth of cells in monolayers, in suspension and wide variety of other cell types with proper supplementation. MP offers MEM with either Earle's or Hanks' salts. Storage Temperature 2-8°C.

The formulation differs from the original in that the concentrations of some of the vitamins have been increased slightly; and in some, the amino acids differ by decimal amounts. In some formulation, the MgSO<sub>4</sub> concentration differs from that of Eagle but agrees with that quoted by Parker (Parker quotes 200.00 mg/liter MgSO<sub>4</sub>·7H<sub>2</sub>O).

#### Formulation:

<b>Component</b>	<b>mg/lit</b>	<b>Mol. Wt.</b>	<b>Mol. (mM)</b>
<b>Amino Acids</b>			
L-Arginine HCl	126.40000	174.2	0.73
L-Cystine	24.02000	240.3	0.10
L-Histidine HCl H <sub>2</sub> O	41.90000	209.6	0.20
L-Isoleucine	52.50000	131.2	0.40
L-Leucine	52.50000	131.2	0.40
L-Lysine HCl	73.06000	182.6	0.40
L-Methionine	14.90000	149.2	0.10
L-Phenylalanine	33.02000	165.2	0.20
L-Threonine	47.64000	119.1	0.40
L-Tryptophan	10.20000	204.2	0.05
L-Tyrosine	36.22000	181.2	0.20
L-Valine	46.90000	117.1	0.40
<b>Vitamins</b>			
Choline Chloride	1.00000	139.6	0.0072
D-Calcium Pantothenate	1.00000	238.3	0.0042
Folic Acid	1.00000	441.4	0.0023
myo-Inositol	2.00000	180.2	0.0111

Nicotinamide	1.00000	122.13	0.0082
Pyridoxal HCl	1.00000	203.6	0.0049
Riboflavin	0.10000	376.4	0.0003
Thiamine HCl	1.00000	337.3	0.0030
<b>Inorganic Salts</b>			
Calcium Chloride [CaCl <sub>2</sub> 2H <sub>2</sub> O] Dihydrate	185.50000	147	1.26
Magnesium Sulfate [MgSO <sub>4</sub> ]	97.70000	120.4	0.81
Potassium Chloride [KCl]	400.00000	74.55	5.37
Potassium Phosphate Monobasic [KH <sub>2</sub> PO <sub>4</sub> ]	60.00000	136.09	0.44
Sodium Chloride [NaCl]	8000.00000	58.44	136.89
Sodium Phosphate Dibasic [Na <sub>2</sub> HPO <sub>4</sub> ]	47.50000	141.96	0.33
<b>Other</b>			
Dextrose	1000.00000	180.2	5.55
HEPES	4770.00000	238.3	20.02
Phenol Red Sodium Salt	17.00000	376.4	0.05
<b>Add</b>			
NaHCO <sub>3</sub> Powder (g/L)		0.35	
NaHCO <sub>3</sub> 7.5% Solution (mL/L)		4.67	
L-glutamine Powder (mg/L)		292.3	
L-glutamine 200 mM Solution (mL/L)		10	

**Availability:**

**1X Liquids:**

**Minimum Essential Medium Eagle (Modified) with Earle's Salts:**

Catalog Number	Description	Size
1210249	1X EMEM with 2.00 g/l sodium bicarbonate without L-glutamine	100 ml
1210254		500 ml
1210654	1X EMEM with 0.85 g/l sodium bicarbonate without L-glutamine	500 ml
1210354	1X EMEM with L-glutamine, 2.00 g/l sodium bicarbonate	500 ml
1210454	1X EMEM with 20 mM HEPES, without sodium bicarbonate, L-glutamine	500 ml
1622049	1X EMEM with 2.00 g/l sodium bicarbonate, without L-glutamine, L-Arginine	100 ml
1622749	1X EMEM with 2.00 g/l sodium bicarbonate, without L-glutamine, phosphate	100 ml
1622754		500 ml
1622249	1X EMEM with 2.00 g/l sodium bicarbonate, without L-glutamine, methionine	100 ml
1622254		500 ml
1641449	1X EMEM with 2.00 g/l sodium bicarbonate, without L-glutamine, cystine, methionine, cysteine	100 ml
1641454		500 ml
1212754	1X EMEM with non-essential amino acids, 0.85 g/l sodium bicarbonate, penicillin (200 IU/ml), streptomycin (100 ug/ml), without L-glutamine	500 ml

**Minimum Essential Medium Eagle (Modified) for Suspension Cultures (MEMS) with Earle's Salts:**

Catalog Number	Description	Size
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1216254	1X MEMS with magnesium chloride, 2.00 g/l sodium bicarbonate, without L-glutamine, MgSO <sub>4</sub>	500 ml
1217254	1X MEMS with magnesium sulfate, 2.00 g/l sodium bicarbonate, without L-glutamine	500 ml

**Minimum Essential Medium Eagle (Modified) with Hanks' Salts:**

Catalog Number	Description	Size
1213249	1X HMEM with 0.35 g/l sodium bicarbonate, without L-glutamine	100 ml
1213254		500 ml
1213454	1X HMEM with 20 mM HEPES, without sodium bicarbonate, L-glutamine	500 ml

**10X Liquids:**

**Minimum Essential Medium Eagle (Modified) with Earle's Salts:**

Catalog Number	Description	Size
1410049	10X EMEM without L-glutamine, sodium bicarbonate	100 ml
1410054		500 ml
1410149	10X EMEM with L-glutamine without sodium bicarbonate	100 ml
1410154		500 ml

**Minimum Essential Medium Eagle (Modified) for Suspension Cultures (MEMS) with Earle's Salts:**

Catalog Number	Description	Size
1417054	10X MEMS without sodium bicarbonate, L-glutamine	500 ml

**Powders:**

**Minimum Essential Medium Eagle (Modified) with Earle's Salts:**

Catalog Number	Description	Size
1010120	EMEM with L-glutamine without sodium bicarbonate	10 x 1 liter
1010122		1 x 10 liter
1010124		1 x 50 liter
1110020	Auto-Pow (Autoclavable) EMEM without L-glutamine, sodium bicarbonate	10 x 1 liter
1110022		1 x 10 liter
1110024		1 x 50 liter
1111020	Auto-Pow (Autoclavable) EMEM without L-glutamine, phenol red, sodium bicarbonate	10 x 1 liter
1111022		1 x 10 liter
1012120	EMEM with non-essential amino acids, L-glutamine, without sodium bicarbonate	10 x 1 liter
1012122		1 x 10 liter

**Minimum Essential Medium Eagle (Modified) for Suspension Cultures (MEMS) with Earle's Salts:**

Catalog Number	Description	Size
1017122	MEMS with L-glutamine, without sodium bicarbonate	1 x 10 liter
1117020	Auto-Pow (Autoclavable) MEMS without L-glutamine, sodium bicarbonate	10 x 1 liter
1117022		1 x 10 liter

**Minimum Essential Medium Eagle (Modified) with Hanks' Salts:**

Catalog Number	Description	Size
1013120	HMEM with L-glutamine, without sodium bicarbonate	10 x 1 liter
1013122		1 x 10 liter
1013124		1 x 50 liter

**References:**

- Eagle, H., *Science*, v. 130, 342 (1959).
- Parker, R.C., *Methods of Tissue Culture 3rd Ed.*, Harper and Row, New York. (1961).