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## TECHNICAL INFORMATION

Catalog Number: 1012120, 1012122, 1012124

### Minimum Essential Medium Eagle (Modified) with Earle's Salts (EMEM), with Non-Essential Amino Acids, L-glutamine, without 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).

#### References:

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

#### Formulation:

Component		Mol. Wt.	Mol. (mM)
<b>Amino Acids</b>	<b>mg/L</b>		
L-Alanine		89.1	0.10
L-Arginine HCl	8.90	174.2	0.73
L-Asparagine H <sub>2</sub> O	126.40	150.1	0.10
L-Aspartic Acid	15.00	133.1	0.10
L-Cystine 2HCl	13.30	313.2	0.10
L-Glutamic Acid	31.20	147.1	0.10
L-Glutamine	14.70	146.1	2.00
Glycine	292.00	75.07	0.10

7.50

L-Histidine HCl H <sub>2</sub> O		209.6	0.20
L-Isoleucine	41.90	131.2	0.40
L-Leucine	52.50	131.2	0.40
L-Lysine HCl	52.50	182.6	0.40
L-Methionine	72.50	149.2	0.10
L-Phenylalanine	15.00	165.2	0.20
L-Proline	32.50	115.1	0.10
L-Serine	11.50	105.1	0.10
L-Threonine	10.50	119.1	0.40
L-Tryptophan	47.60	204.2	0.05
L-Tyrosine 2Na 2H <sub>2</sub> O	10.00	261.2	0.20
L-Valine	51.90	117.1	0.40
<b>Vitamins</b>	46.80		
Choline Chloride		139.6	0.0072
D-Calcium Pantothenate	1.00	238.3	0.0042
Folic Acid	1.00	441.4	0.0023
myo-Inositol	1.00	180.2	0.0111
Nicotinamide	2.00	122.13	0.0082
Pyridoxine HCl	1.00	205.6	0.0049
Riboflavin	1.00	376.4	0.0003
Thiamine HCl	0.10	337.3	0.0030
<b>Inorganic Salts</b>	1.00		
Calcium Chloride [CaCl <sub>2</sub> ]		111	1.80
	200.00		

Magnesium Sulfate [MgSO <sub>4</sub> ]		120.4	0.81
Potassium Chloride [KCl]	97.70	74.55	5.37
Sodium Chloride [NaCl]	400.00	58.44	116.36
Sodium Phosphate Monobasic [NaH <sub>2</sub> PO <sub>4</sub> H <sub>2</sub> O] Monohydrate	6800.00	159.96	0.88
<b>Other</b>	140.00		
Dextrose		180.2	5.55
Phenol Red Sodium Salt	1000.00	376.4	0.03
<b>Add</b>	10.00		
NaHCO <sub>3</sub> Powder (g/L)		0.85	
NaHCO <sub>3</sub> 7.5% Solution (mL/L)		11.35	

**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	1X EMEM with 2.00 g/l sodium bicarbonate without L-glutamine	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	1X EMEM with 2.00 g/l sodium bicarbonate, without L-glutamine, phosphate	500 ml
1622249	1X EMEM with 2.00 g/l sodium bicarbonate, without L-glutamine, methionine	100 ml
1622254	1X EMEM with 2.00 g/l sodium bicarbonate, without L-glutamine, methionine	500 ml
1641449	1X EMEM with 2.00 g/l sodium bicarbonate, without L-glutamine, cystine, methionine, cysteine	100 ml
1641454	1X EMEM with 2.00 g/l sodium bicarbonate, without L-glutamine, cystine, methionine, cysteine	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
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	1X HMEM with 0.35 g/l sodium bicarbonate, without L-glutamine	500 ml

1213454	1X HMEM with 20 mM HEPES, without sodium bicarbonate, L-glutamine	500 ml
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**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