

Product Information

Minimum Essential Medium THERMO-POW™

with Earle's Balanced Salts, without L-glutamine, without sodium bicarbonate

CATALOG NO. 56414C

Description

Minimum Essential Medium (MEM) with Earle's Balanced Salts was developed by Harry Eagle as a result of his studies to determine the essential nutritional requirements of mouse L cells and HeLa cells in culture. He demonstrated that these cells require 13 amino acids and seven vitamins to grow and reproduce *in vitro*. MEM is a modification of Eagle's earlier medium Basal Medium Eagle (BME), containing higher concentrations of the essential nutrients. This medium has demonstrated the ability to support a variety of normal and transformed cells in culture and contains Earle's Balanced Salts, which makes it suitable for use in atmospheres charged with CO₂ gas.

Minimum Essential Medium (MEM) THERMO-POW™ autoclavable medium offers a convenient alternative to membrane-sterilized liquid MEM. It is modified to include heat stable components to ensure that product efficacy is maintained after autoclaving. Because L-glutamine is heat labile, it has been omitted from this formulation.

Precautions

Use aseptic technique when handling or supplementing medium after filtration. This product is for further manufacturing use. THIS PRODUCT IS NOT INTENDED FOR HUMAN OR THERAPEUTIC USE.

Storage

Store dry powder medium at 2 to 8 C. Do not use after the expiration date. Store hydrated medium protected from light at 2 to 8 C.

Indications of Deterioration

Dry powder medium should be free flowing. Do not use if powder is caked. Prepared medium should be clear of particulates and flocculent material. Do not use if liquid medium is cloudy or contains precipitate. Other evidence of deterioration may include color change or degradation of physical or performance characteristics.

Formulation

Component (all components measured in mg/L)	
INORGANIC SALTS	
Calcium chloride anhydrous	200.000
Magnesium sulfate anhydrous	97.670
Potassium chloride	400.000
Sodium chloride	6800.000
Sodium phosphate monobasic monohydrate	140.000
Succinic acid free acid	75.000
Succinic acid 2Na hexahydrate	100.000
VITAMINS	
D-calcium pantothenate	1.000
Choline bitartrate	1.800
Folic acid	1.000
i-inositol	2.000
Niacinamide	1.000
Pyridoxal HCl	1.000
Riboflavin	0.100
Thiamine HCl	1.000
AMINO ACIDS	
L-arginine HCl	126.980
L-cystine 2HCl	31.280
L-histidine HCl monohydrate	41.880
L-isoleucine	52.000
L-leucine	52.000
L-lysine HCl	72.470
L-methionine	15.000
L-phenylalanine	32.000
L-threonine	48.000
L-tryptophan	10.000
L-tyrosine free base	36.000
L-valine	46.000
OTHER	
Dextrose anhydrous	1000.000
Phenol red sodium salt	6.372
ADD: Sodium bicarbonate	2200.000
Grams of powder per liter	9.392

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Preparation Instructions

1. Measure 80 - 90% of the final volume of cell culture grade water (Catalog No. 59900C) into an appropriate size mixing vessel. Water temperature should be 15 to 30 C. Do not heat water.
2. Add the dry powder medium to the water. Rinse the original package with a small amount of cell culture grade water to remove all traces of powder and add to the solution. Mix until completely dissolved.
3. Add water to bring the final volume to 96% of the final volume being prepared.
4. Dispense 96 mL of the solution in Step 3 into 100 mL autoclavable bottles (or 480 mL in 500 mL bottles). Place caps loosely on bottles.
5. Autoclave at 121 C, 15 psi for 15 minutes on liquid cycle/slow exhaust. Because of the variability of autoclaves and load configurations, it may be necessary to adjust the time required to effectively sterilize the media. This should be determined in your own laboratory.
6. After autoclaving, allow media to cool to 15 to 30 C in the dark, or protect from light.
7. For each 100 mL bottle being prepared, add 2.93 mL/L of sodium bicarbonate solution 7.5% (Catalog No. 59221C) and 1.00 mL/L of L-glutamine solution 200 mM (Catalog No. 59202C). Tighten the caps and mix gently.
8. This product was manufactured so the final pH will be 7.2 - 7.4 after adding the sodium bicarbonate and L-glutamine. If it is necessary to adjust the pH, use NaOH 1N (Catalog No. 59223C) or HCl 1N.
9. Store protected from light at 2 to 8 C.
10. Supplements, such as antibiotics, can be added to the sterilized solution using aseptic technique. Storage conditions and shelf life of the supplemented product may be affected by the nature of the supplements. Sterile serum should not be refiltered before or after being added to sterile medium because growth promoting capacity may be reduced upon refiltration.

NOTE: Dry powder medium is extremely hygroscopic and must be protected from atmospheric moisture. We recommend that the entire contents of each package be used immediately after opening.

Characteristics

Appearance

Off-white free-flowing powder

Bioburden

≤ 100 CFU/100 mL

Endotoxin

≤ 1.0 EU/mL

Osmolality (as supplied)

265 - 305 mOsm/kg H₂O

pH (as supplied)

3.9 - 4.3

pH (with NaHCO₃)

6.9 - 7.3

References

1. Eagle, H., *Science* (1959) 130:432.
2. Eagle, H., Peil, K. A., Fleischman, R., *JBC* (1957) 228:847.
3. Hanks, J. H., Wallace, R. E., *PSEBM* (1949) 71:196.
4. Lockhart, R. Z., Eagle, H., *Science* (1959) 192:252.

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