

CLASSICAL CELL CULTURE MEDIA

Single Strength Liquid Media
Two Fold Concentration Media
Five & Ten Fold Concentration Media
Media For Insect Cells
Powdered Media

02

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Sterile Filtration and Aseptic Filling

Biological Industries' medium products are prepared by a sterile filtration process and aseptic filling. The process has been validated to ensure that the production of solutions meets the sterility assurance level of 10^3 .

The filtration step includes the use of sterilizing grade membrane filters. After filtration, the medium is dispensed into bottles by an aseptic filling process which has been validated to insure sterility of the final product. Medium products are produced in a controlled environment (clean rooms) designed to carefully control air pressure and particulate matter.

The manufacturing area is a class 100,000 (ISO 8) environment. The sterile bottles and equipment are stored in a class 10,000 (ISO 7) environment, and the filling room is a class 1000 (ISO 6) environment with class 100 (ISO 5) laminar air flow sterile bench.

Clean rooms are monitored on a regular basis for particulate and microbial levels to ensure that the air handling system, cleaning protocols and personnel maintain required standards. After filling, the final product is held in quarantine until all quality control tests have been completed.

Quality Control

The quality of our liquid media is confirmed by testing representative samples from each lot.

Physicals Tests

pH & osmolality are measured to verify compliance with accepted specifications.

Endotoxins

Endotoxin concentrations are routinely measured with the Limulus Amebocyte Lysate (LAL) test using the kinetic turbidimetric method.

Sterility Testing

The absence of fungal and bacterial contamination is confirmed by sterility tests using the direct inoculation method or membrane filtration method with microbiological media. All media containing products of animal origin are tested for the absence of mycoplasma.

Cell Growth Promotion

The growth promotion activity and the absence of cytotoxicity of all medium products are tested using appropriate cell lines. Cells are examined for doubling time and cell morphology.

Expiration Date

Refer to product label for expiration date.

Storage

For optimal performance, store medium products under the conditions specified on the label.

Avoid light exposure of liquid medium products.

Certificate of Analysis and Safety Data

A Certificate of Analysis for each product lot is available upon request as well as a Material Safety Data Sheet (MSDS).

Single-Strength Liquid Media Products

Product Name	Catalogue No.	Unit Size	Storage Temp.	Formulation Page
Basal Medium-Eagle (BME)				
Earle's Salts Base				
Without L-Glutamine	01-015-1A	500ml	2-8°C	+
	01-015-1B	100ml	2-8°C	+
Minimum Essential Medium-Eagle (MEM-E)				
Earle's Salts Base				
Without L-Glutamine	01-025-1A	500ml	2-8°C	+
	01-025-1B	100ml	2-8°C	+
Minimum Essential Medium-Eagle (MEM-H)				
Hanks' Salts Base				
Without L-Glutamine	01-035-1A	500ml	2-8°C	+
	01-035-1B	100ml	2-8°C	+
Minimum Essential Medium-Eagle (MEM-NEAA)				
Earle's Salts Base				
With Non-Essential Amino Acids				
Without L-Glutamine	01-040-1A	500ml	2-8°C	+
	01-040-1B	100ml	2-8°C	+
Minimum Essential Medium-Alpha (MEM-A)				
With 1g/l D-Glucose (Low Glucose)				
With L-Glutamine				
Without Ribonucleosides and Deoxyribonucleosides	01-042-1A	500ml	2-8°C	+
	01-042-1B	100ml	2-8°C	+

Product Name	Catalogue No.	Unit Size	Storage Temp.	Formulation Page
Minimum Essential Medium Alpha (MEM-A) With 4.5 g/l D-Glucose (High Glucose) With L-Glutamine Without Ribonucleosides and Deoxyribonucleosides	01-043-1A	500ml	2-8°C	
	01-043-1B	100ml	2-8°C	
Minimum Essential Medium (MEM) for suspension cultures Without L-Glutamine	01-045-1A	500ml	2-8°C	+
	01-045-1B	100ml	2-8°C	+
Dulbecco's Modified Eagle Medium (DMEM) With 1g/l D-Glucose (Low Glucose) With Sodium Pyruvate 110mg/l Without L-Glutamine	01-050-1A	500ml	2-8°C	+
	01-050-1B	100ml	2-8°C	+
Dulbecco's Modified Eagle Medium (DMEM) With 4.5g/l D-Glucose (High Glucose) Without Sodium Pyruvate Without Phenol Red Without L-Glutamine	01-053-1A	500ml	2-8°C	
	01-053-1B	100ml	2-8°C	
Dulbecco's Modified Eagle Medium (DMEM) With 4.5g/l D-Glucose (High Glucose) Without Sodium Pyruvate Without L-Methionine Without L-Glutamine	01-054-1A	500ml	2-8°C	
	01-054-1B	100ml	2-8°C	
Dulbecco's Modified Eagle Medium (DMEM) With 4.5g/l D-Glucose (High Glucose) Without Sodium Pyruvate Without L-Glutamine	01-055-1A	500ml	2-8°C	+
	01-055-1B	100ml	2-8°C	+
Dulbecco's Modified Eagle Medium (DMEM) With 4.5g/l Glucose (High Glucose) Without Sodium Pyruvate With stable Glutamine	01-056-1A	500ml	2-8°C	
	01-056-1B	100ml	2-8°C	

Product Name	Catalogue No.	Unit Size	Storage Temp.	Formulation Page
Dulbecco's Modified Eagle Medium (DMEM) Without D-Glucose Without Sodium Pyruvate Without L-Glutamine	01-057-1A	500ml	2-8°C	
	01-057-1B	100ml	2-8°C	
Iscove's Modified Dulbecco's Medium (IMDM) With L-Glutamine Without Alpha-Thioglycerol Without Beta Mercaptoethanol	01-058-1A	500ml	2-8°C	+
	01-058-1B	100ml	2-8°C	+
MCDB-153 (Modified)	01-059-1A	500ml	2-8°C	
	01-059-1B	100ml	2-8°C	
McCoy's 5A Medium (Modified) Without Serum With L-Glutamine	01-075-1A	500ml	2-8°C	+
	01-075-1B	100ml	2-8°C	+
Medium M-199 (M199E) Earle's Salts Base With L-Glutamine	01-080-1A	500ml	2-8°C	+
	01-080-1B	100ml	2-8°C	+
Medium M-199 (M199H) Hanks' Salts Base With L-Glutamine	01-085-1A	500ml	2-8°C	+
	01-085-1B	100ml	2-8°C	+
Nutrient Mixture F-10 (Ham's) With L-Glutamine	01-090-1A	500ml	2-8°C	+
	01-090-1B	100ml	2-8°C	+
Nutrient Mixture F-12 (Ham's) With L-Glutamine	01-095-1A	500ml	2-8°C	+
	01-095-1B	100ml	2-8°C	+
RPMI Medium 1640 With L-Glutamine	01-100-1A	500ml	2-8°C	+
	01-100-1B	100ml	2-8°C	+
RPMI Medium 1640 Without D-Glucose Without L-Glutamine	01-101-1A	500ml	2-8°C	
	01-101-1B	100ml	2-8°C	
RPMI Medium 1640 Without Phenol Red Without L-Glutamine	01-103-1A	500ml	2-8°C	
	01-103-1B	100ml	2-8°C	
RPMI Medium 1640 Without L-Glutamine	01-104-1A	500ml	2-8°C	
	01-104-1B	100ml	2-8°C	

Single-Strength Liquid Media Products (Cont.)

Product Name	Catalogue No.	Unit Size	Storage Temp.	Formulation Page
RPMI Medium 1640 With 25mM HEPES With L-Glutamine	01-106-1A	500ml	2-8°C	+
	01-106-1B	100ml	2-8°C	+
Waymouth's MB 752/1 Medium With L-Glutamine	01-110-1A	500ml	2-8°C	+
	01-110-1B	100ml	2-8°C	+
Leibovitz L-15 Medium With L-Glutamine	01-115-1A	500ml	2-8°C	+
	01-115-1B	100ml	2-8°C	+
Dulbecco's Modified Eagle Medium (DMEM): Nutrient Mixture F-12 (Ham's) (1:1) Without L-Glutamine With Sodium Bicarbonate 1.2gm/l With HEPES 15Mm With Sodium Pyruvate 55mg/l	01-170-1A	500ml	2-8°C	+
	01-170-1B	100ml	2-8°C	+
Mouse Embryonic Stem Cells (ESC) Basal Medium With Stable Glutamine	01-171-1A	500ml	2-8°C	
	01-171-1B	100ml	2-8°C	

Two Fold Concentration Media

Product Name	Catalogue No.	Unit Size	Storage Temp.	Formulation Page
Minimum Essential Medium-Eagle (MEM-E) 2X Conc. Earle's Salts Base Without L-Glutamine With Sodium Bicarbonate	01-025-9A	500ml	2-8°C	
	01-025-9B	100ml	2-8°C	
Dulbecco Modified Eagle Medium (DMEM), 2X Conc. 4.5g/l D-Glucose (High Glucose) Without L-Glutamine With Sodium Bicarbonate	01-055-9A	500ml	2-8°C	
	01-055-9B	100ml	2-8°C	

Five-Fold and Ten-Fold Concentration Media

Product Name	Catalogue No.	Unit Size	Storage Temp.	Formulation Page
Basal Medium Eagle (BME) 10X Conc. Earle's Salts Base Without L-Glutamine Without Sodium Bicarbonate	01-015-5A	500ml	2-8°C	+
	01-015-5B	100ml	2-8°C	+
Minimum Essential Medium Eagle (MEM-E) 10X Conc. Earle's Salts Base Without L-Glutamine Without Sodium Bicarbonate	01-025-5A	500ml	2-8°C	+
	01-025-5B	100ml	2-8°C	+
Dulbecco Modified Eagle Medium (DMEM) 5X Conc. 1g/l D-Glucose (Low Glucose) Without L-Glutamine Without Sodium Bicarbonate	01-050-4A	500ml	AMB	+
	01-050-4B	100ml	AMB	+
Dulbecco Modified Eagle Medium (DMEM) 5X Conc. 4.5g/l D-Glucose (High Glucose) Without L-Glutamine Without Sodium Bicarbonate	01-055-4A	500ml	AMB	+
	01-055-4B	100ml	AMB	+
Medium M-199 10X Conc. Earle's Salts Base With L-Glutamine Without Sodium Bicarbonate	01-080-5A	500ml	2-8°C	+
	01-080-5B	100ml	2-8°C	+
Nutrient Mixture F-10 (Ham's) 10X Conc. With L-Glutamine Without Sodium Bicarbonate	01-090-5A	500ml	2-8°C	
	01-090-5B	100ml	2-8°C	
Nutrient Mixture F-12 (Ham's) 10X Conc. With L-Glutamine Without Sodium Bicarbonate	01-095-5A	500ml	2-8°C	
	01-095-5B	100ml	2-8°C	
RPMI Medium 1640 10X Conc. Without L-Glutamine Without Sodium Bicarbonate	01-104-5A	500ml	2-8°C	+
	01-104-5B	100ml	2-8°C	+

Media Preparation

Directions for the Preparation of Single Strength Synthetic Liquid Media (1x) from Concentrated Media.

1. Measure out sterile culture - grade water (Catalogue No. 03-055-1) to approximately 70% of desired total volume of media. Pour water into an appropriate sterile mixing container that is close to the desired final volume. The water should be at room temperature.
2. Add the amount of the concentrated medium or concentrated medium components.
3. Add the desired amount of L-Glutamine Solution 200 mM (Catalogue No. 03-020-1) if required.
4. Add the desired amount of Sodium Bicarbonate Solution 7.5% (Catalogue No. 03-040-1).
5. Add antibiotics solution if desired.
6. Add water to the final volume. During the dilution, stir gently into equilibrium. If necessary, adjust pH with sterile 1 N NaOH or HCl.
7. Add the desired amount of serum, if required.
8. Store at 2°C to 8°C.

Important

The above procedures are carried out under strict sterile conditions. Do not use mouth pipetting.

Example 1

Preparation of Basal Medium-Eagle, Earle's Salt Base, one liter

1. 700 ml sterile water (Catalogue No.03-055-1)
2. 100 ml Basal Medium-Eagle, Earle's Salts Base, concentrate 10X, without Sodium Bicarbonate and L-Glutamine (Catalogue No. 01-015-5).
3. 10 ml L-Glutamine Solution 200 mM (Catalogue No. 03-020-1).
4. 29.4 ml Sodium Bicarbonate Solution 7.5%. (Catalogue No. 03-040-1).
5. 10ml Penicillin-Streptomycin Solution (Catalogue No. 03-031-1).
6. Sterile water to final volume, Adjust pH if necessary.

Example 2

Preparation of RPMI from Concentrate

Our RPMI Concentrate is prepared by a special method which enhances the stability of the product. Therefore in this case proceed as follows:

1. 700 ml distilled water
2. Add 100 ml RPMI Concentrate 10X
3. Adjust pH to 6.5-7.0 with 1N NaOH
4. Add 10.3 ml L-Glutamine Solution 200 mM
5. Add 26.7 ml Sodium Bicarbonate Solution 7.5%
6. Adjust pH with 1N NaOH or 1N HCl to pH 7.0-7.4
7. Add distilled water to final volume. Adjust pH if necessary.
8. Filter the medium into sterile containers using a 0.2 µm membrane filter.

Recommended Amounts of Sodium Bicarbonate and L-Glutamine To Be Added In The Preparation of Single Strength Liquid Media (1x) from Concentrated Media (5x, 10x)

Desired product Catalogue No. / Description	Prepared From product Catalogue No. / Description	Quantity Sodium Bicarbonate Solution 7.5% Catalogue No. 03-040-1 ml/Liter	Quantity L-Glutamine Solution 200mM Catalogue No. 03-020-1 ml/Liter
01-015-1 Basal Medium-Eagle Earle's Salts Base (1x)	01-015-5 Basal Medium-Eagle Earle's Salts Base (10x)	29.4	10
01-025-1 Minimum Essential Medium Eagle Earle's Salts Base (1x)	01-025-5 Minimum Essential Medium Eagle Earle's Salts Base (10x)	29.4	10
01-050-1 Dulbecco's Modified Eagle Medium Low Glucose (1x)	01-050-4 Dulbecco's Modified Eagle Medium Low Glucose (5x)	49.4	20
01-055-1 Dulbecco's Modified Eagle Medium High Glucose (1x)	01-055-4 Dulbecco's Modified Eagle Medium High Glucose (5x)	49.4	20
01-080-1 Medium M-199 Earle' Salt Base (1x)	01-080-5 Medium M-199 Earle' Salt Base (10x)	29.4	
01-085-1 Medium M-199 Hanks' Salt Base (1x)	01-085-5 Medium M-199 Hanks' Salt Base (10x)	4.7	
01-090-1 Nutrient Mixture F-10 (HAM) (1x)	01-090-5 Nutrient Mixture F-10 (HAM) (10x)	16	
01-095-1 Nutrient Mixture F-12 (HAM) (1x)	01-095-5 Nutrient Mixture F-12 (HAM) (10x)	15.7	
01-100-1 RPMI-1640 (1x)	01-104-5 RPMI-1640 (10x)	26.7	10.3
01-170-1 DMEM:F-12(1:1) (1x)	01-170-5 DMEM:F-12(1:1) (10x)	16	12.5

* Tryptose Phosphate Broth (2000mg/l) must also be added. We recommend using cell culture grade water Cat. No. 03-055-1

L-Alanyl L-Glutamine Solution

Product Name	Catalogue No.	Unit Size	Storage Temp.
L-Alanyl-L-Glutamine (Stable Glutamine) 200 mM in 0.85% NaCl	03-022-1B	100ml	-20°C
	03-022-1C	20ml	-20°C

L-Alanyl L-Glutamine is a dipeptide substitute for L-Glutamine.

- Can be used as a direct substitute for L-Glutamine at equimolar concentrations in mammalian cell culture systems.
- Eliminates problems associated with the spontaneous breakdown of L-Glutamine during incubation.
- Highly soluble in aqueous solution and is heat stable.

Expiration

24 months

Storage

-20°C

Media for Insect Cells

Product Name	Catalogue No.	Unit Size	Storage Temp.	Formulation Page
BIOINSECT-1 With Glutamine (ACFM)	05-050-1A	500ml	2-8°C	
	05-050-1B	100ml	2-8°C	
Schneider's Drosophila Medium With L-Glutamine	01-150-1A	500ml	2-8°C	+
	01-150-1B	100ml	2-8°C	+
Grace's Insect Cell Medium Without Insect Haemolymph Without Lactalbumin Hydrolysate Without Yeastolate With L-Glutamine	01-155-1A	500ml	2-8°C	+
	01-155-1B	100ml	2-8°C	+

Powdered Media

Product	Catalogue No.	Unit Size	Storage Temp.	Formulation Page
Minimum Essential Medium-Eagle (MEM-E) Powder Earle's Salts Base With L-Glutamine Without Sodium Bicarbonate	11-025-1N	1x50 lt	2-8°C	+
	11-025-1M	1x10 lt	2-8°C	+
	11-025-1G	1x5 lt	2-8°C	+
	11-025-1K	1x1 lt	2-8°C	+
Minimum Essential Medium-Eagle (MEM-E) Powder Earle's Salts Base With Non-Essential Amino Acids With L-Glutamine Without Sodium Bicarbonate	11-040-1N	1x50 lt	2-8°C	+
	11-040-1M	1x10 lt	2-8°C	+
	11-040-1G	1x5 lt	2-8°C	+
	11-040-1K	1x1 lt	2-8°C	+
Minimum Essential Medium-Alpha (MEM-A) Powder With 1g/l D-Glucose (Low Glucose) Without Ribonucleosides and Deoxyribonucleosides With L-Glutamine Without Sodium Bicarbonate	11-042-1M	1x10 lt	2-8°C	+
	11-042-1G	1x5 lt	2-8°C	+
	11-042-1K	1x1lt	2-8°C	+
Dulbecco's Modified Eagle Medium (DMEM) Powder With 1g/l D-Glucose (Low Glucose) With Sodium Pyruvate 110mg/l With L-Glutamine Without Sodium Bicarbonate	11-050-1N	1x50lt	2-8°C	+
	11-050-1M	1x10lt	2-8°C	+
	11-050-1G	1x5 lt	2-8°C	+
	11-050-1K	1x1 lt	2-8°C	+

Product	Catalogue No.	Unit Size	Storage Temp.	Formulation Page
Dulbecco's Modified Eagle Medium (DMEM) Powder With 4.5g/l D-Glucose (High Glucose) Without Sodium Pyruvate With L-Glutamine Without Sodium Bicarbonate	11-055-1N	1x10 lt	2-8°C	+
	11-055-1M	1x10 lt	2-8°C	+
	11-055-1G	1x5 lt	2-8°C	+
	11-055-1K	1x1 lt	2-8°C	+
Iscove's Modified Dulbecco Medium (IMDM) Powder With Hepes With L-Glutamine Without Sodium Bicarbonate	11-058-1N	1x50 lt	2-8°C	+
	11-058-1M	1x10 lt	2-8°C	+
	11-058-1G	1x5 lt	2-8°C	+
McCoy's 5A Medium (Modified) Powder With L-Glutamine Without Sodium Bicarbonate	11-075-1M	1x10 lt	2-8°C	+
	11-075-1G	1x5 lt	2-8°C	+
Medium M-199 (M199E) Powder Earle's Salts Base With L-Glutamine Without Sodium Bicarbonate	11-080-1M	1x10 lt	2-8°C	+
	11-080-1G	1x5 lt	2-8°C	+
	11-080-1K	1x1 lt	2-8°C	+
Nutrient Mixture F-10 (Ham's) Powder With L-Glutamine Without Sodium Bicarbonate	11-090-1M	1x10 lt	2-8°C	+
	11-090-1G	1x5 lt	2-8°C	+
	11-090-1K	1x1 lt	2-8°C	+
Nutrient Mixture F-12 (Ham's) Powder With L-Glutamine Without Sodium Bicarbonate	11-095-1M	1x10 lt	2-8°C	+
	11-095-1G	1x5 lt	2-8°C	+
	11-095-1K	1x1 lt	2-8°C	+
RPMI Medium 1640, Powder With L-Glutamine Without Sodium Bicarbonate	11-100-1N	1x50 lt	2-8°C	+
	11-100-1M	1x10 lt	2-8°C	+
	11-100-1G	1x5 lt	2-8°C	+
	11-100-1K	1x1 lt	2-8°C	+

Product	Catalogue No.	Unit Size	Storage Temp.	Formulation Page
Dulbecco's Modified Eagle Medium (DMEM): Nutrient Mixture F-12 (Ham's) (1:1), Powder With Hepes 15Mm With L-Glutamine Without Sodium Bicarbonate	11-170-1N	1x50 lt	2-8°C	+
	11-170-1M	1x10 lt	2-8°C	+
	11-170-1G	1x5 lt	2-8°C	+
	11-170-1K	1x1 lt	2-8°C	+
Dulbecco's Phosphate Buffered Saline (DPBS), Powder Without Calcium Chloride Without Magnesium Chloride With L-Glutamine Without Sodium Bicarbonate	11-223-1M	1x10 lt	2-8°C	
	11-223-1G	1x5 lt	2-8°C	
	11-223-1K	1x1 lt	2-8°C	

Unit Sizes: 1 liter, 5 liters, 10 liters and 50 liters.
Other products and package sizes are available by special order.



Powdered Media Preparation Procedure:

1. To a mixing container that is as close to the final volume as possible, add 10% less distilled water than the desired total volume of medium.
2. Add powdered medium to room temperature water with gentle stirring. Do not heat water.
3. Rinse inside of package to remove all trace of powder.
4. Add Sodium Bicarbonate as required.
5. Dilute the medium to the desired volume with distilled water and stir until dissolved. Do not overmix.
6. Adjust the pH to between 0.2-0.3 below the desired final working pH by slowly adding, with stirring, 1N NaOH HCl. The pH usually will rise 0.2 -0.3 units upon filtration. Keep the container closed until the medium is filtered.
7. Process the medium immediately into sterile containers by membrane filtration using 0.2 μ membrane filter.

See L-Alanyl L-Glutamine Solution on previous page.

Sodium Bicarbonate Concentrations:

Catalogue No.	Sodium Bicarbonate gram/liter	Sodium Bicarbonate ml/liter from 7.5% Solution
11-025-1	2.2	29.3
11-040-1	2.2	29.3
11-042-1	2.2	29.3
11-050-1	3.7	49.3
11-055-1	3.7	49.3
11-058-1	3.024	40.32
11-075-1	2.2	29.3
11-080-1	2.2	29.3
11-090-1	1.2	16
11-095-1	1.176	15.68
11-100-1	2.0	26.67
11-170-1	1.2	16

Example

RPMI 1640 (11-100-1) – 1 liter

1. Prepare 900ml of distilled water in clean glass beaker. Water temperature should be 15-30°C. Put the beaker on a stirrer and add a stirring bar.
2. Add the 1-liter powder to the water and stir gently. Fill some distilled water into the empty package, stir and pour the remains into the beaker. Stir until completely dissolved.
3. Add 2.0 gram Sodium Bicarbonate (or 26.67 ml of 7.5% Sodium Bicarbonate Solution).
4. Adjust pH to 0.1-0.3 units below the required pH using 1N HCl or 1N NaOH. The pH will rise by 0.1-0.3 units after filtration.
5. Add distilled water up to 1 liter.
6. Filter for sterility with 0.2 μ membrane filter into sterile bottles.
7. For the preparation of 10 liters multiply by 10.

