

DATA SHEET

Rev.ver: 01

1. Identification

Product Name: Nutrient Mixture F-10 Ham

w/o L-Glutamine and Sodium bicarbonate

Catalog.no: CCMP091

2. Description

Nutrient Mixture F-10 (Ham's F-10) Medium, developed by R. G. Ham, was originally designed for the clonal growth of Chinese Hamster Ovary (CHO) cells and other mammalian cells under serum-free or reduced-serum conditions. This medium provides a rich and balanced formulation that supports the growth of a broad spectrum of mammalian cell types, including fibroblasts, primary cells, and established lines.

Ham's F-10 contains a wide variety of nutrients, including higher concentrations of amino acids, vitamins, and additional growth factors compared to earlier basal media. It also includes hypoxanthine and thymidine to support the synthesis of nucleic acids and promote vigorous cell proliferation. The formulation's precise balance of glucose, salts, and trace elements makes it suitable for both adherent and suspension cultures.

Widely used for the culture of CHO, WI-38, primary rat liver, and other fastidious cells, F-10 medium is also employed in hybridoma culture and in serum-reduced systems where cell viability and productivity are critical. The medium may be further supplemented with L-glutamine, sodium bicarbonate, and fetal bovine serum depending on the specific requirements of the cell type.

3. Storage/Stability

Appearance	White to light pink homogenous powder.
CO ₂ concentration, optimum	5.0 %
Storage and shelf life	Store at +2°C to +8°C protected from light. Shelf life of 3 years.
Shipping conditions	Ambient

4. Formulation

Components	Concentration (mg/L)
Amino Acids	
Glycine	7.5
L-Alanine	8.9
L-Arginine hydrochloride	211
L-Asparagine-H ₂ O	15.01
L-Aspartic acid	13.3
L-Cysteine hydrochloride-H ₂ O	35.12

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L-Glutamic Acid	14.7
L-Histidine hydrochloride-H ₂ O	21
L-Isoleucine	2.6
L-Leucine	13.1
L-Lysine hydrochloride	29.3
L-Methionine	4.5
L-Phenylalanine	5
L-Proline	11.5
L-Serine	10.5
L-Threonine	11.9
L-Tryptophan	0.6
L-Tyrosine disodium salt dihydrate	2.61
L-Valine	3.5
Vitamins	
Biotin	0.024
Choline chloride	0.698
D-Calcium pantothenate	0.715
Folic Acid	1.32
Niacinamide	0.615
Pyridoxine hydrochloride	0.206
Riboflavin	0.376
Thiamine hydrochloride	1.0
Vitamin B12	1.36
i-Inositol	0.541
Inorganic Salts	
Calcium Chloride (CaCl ₂ ·2H ₂ O) (dihydrate.)	44.1
Cupric sulfate (CuSO ₄ ·5H ₂ O)	0.0025
Ferric sulfate (FeSO ₄ ·7H ₂ O)	0.834
Magnesium sulfate (anhydrous)	74.64
Potassium Chloride (KCl)	285.0
Potassium phosphate monobasic	83.0
Sodium Chloride (NaCl)	7400.0
Sodium Phosphate dibasic (Na ₂ HPO ₄) anhydrous	153.7
Zinc sulfate (ZnSO ₄ ·7H ₂ O)	0.0288
Other Components	
Hypoxanthine Na	4.08
Lipoic Acid	0.21
Thymidine	0.73
Sodium Pyruvate	110
Putrescine dihydrochloride	0.161
D-Glucose (Dextrose)	1100.0
Phenol Red sodium salt	1.3
Linoleic acid	0.084

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5. Procedure

Preparation of 1-liter liquid medium:

1. Suspend 9.7 g in 900 ml cell culture grade water with constant, gentle stirring until the powder is completely dissolved. Do not heat the water.
2. Add 1.2 g of sodium bicarbonate powder or 16.0ml of 7.5% sodium bicarbonate solution for 1 liter of medium and 0.146 gms of L-glutamine or 5.0ml of 200mM L-Glutamine and stir until dissolved.
3. Adjust the pH to 0.2 to 0.3 pH units below the desired pH using 1 N HCl or 1 N NaOH since the pH tends to rise during filtration.
4. Add cell culture grade water up to the final volume of 1000 ml
5. Sterilize the medium immediately by filtering through a sterile membrane filter with porosity of 0.22 micron or less, using positive pressure rather than vacuum to minimize the loss of carbon dioxide.
6. Aseptically add sterile supplements as required and dispense the desired amount of sterile medium into sterile containers.
7. Store liquid medium at +2°C to +8°C and in dark until use.