

Ham's F-12 Liquid Medium Formula

Components	Concentration (mg/L)
Amino Acids	
Glycine	7.50
L-Alanine	8.90
L-Arginine hydrochloride	211.0
L-Asparagine-H ₂ O	15.0
L-Aspartic acid	13.30
L-Cysteine hydrochloride-H ₂ O	35.12
L-Glutamic Acid	14.70
L-Glutamine	146.00
L-Histidine hydrochloride-H ₂ O	21
L-Isoleucine	4.00
L-Leucine	13.10
L-Lysine hydrochloride	36.50
L-Methionine	4.50
L-Phenylalanine	5.00
L-Proline	34.50
L-Serine	10.50
L-Threonine	11.90
L-Tryptophan	2.04
L-Tyrosine disodium salt dihydrate	7.81
L-Valine	11.70
Vitamins	
Biotin	0.01
Choline chloride	14.0000
D-Calcium pantothenate	0.50
Folic Acid	1.30
Niacinamide	0.04
Pyridoxine hydrochloride	0.06
Riboflavin	0
Thiamine hydrochloride	0.300
Vitamin B12	1.40
i-Inositol	18.00
Inorganic Salts	
Calcium Chloride (CaCl ₂) (anhyd.)	33.2
Cupric sulfate (CuSO ₄ 5H ₂ O)	0.0
Ferric sulfate (FeSO ₄ 7H ₂ O)	0.8340
Magnesium Chloride (anhydrous)	57.22

Potassium Chloride (KCl)	223.600
Sodium Bicarbonate (NaHCO ₃)	1176.00
Sodium Chloride (NaCl)	7599.00
Sodium Phosphate dibasic (Na ₂ HPO ₄) anhydrous	142.0
Zinc sulfate (ZnSO ₄ 7H ₂ O)	1
Other Components	
D-Glucose (Dextrose)	1802.0
Hypoxanthine	4.08
Linoleic Acid	0.1
Lipoic Acid	0.210
Phenol Red	1
Putrescine 2HCl	0.2
Sodium Pyruvate	110.00
Thymidine	0.700