

Formulations

HAM'S NUTRIENT MIXTURE F-12

COMPONENTS	Cat.# 112-026 mg / L	Cat.# 112-153 mg / L
Inorganic Salts		
CaCl ₂ •2H ₂ O	44.11	44.11
CuSO ₄ •5H ₂ O	0.00249	0.00249
FeSO ₄ •7H ₂ O	0.834	0.834
KCl	223.65	223.65
MgCl ₂ (anhydrous)	57.15	57.15
NaCl	7599.00	7599.00
NaHCO ₃	1176.00	1176.00
Na ₂ HPO ₄ (anhydrous)	142.12	142.12
ZnSO ₄ •7H ₂ O	0.863	0.863
Other Components		
D-Glucose	1801.60	1801.60
Hypoxanthine•2Na	5.4	
Linoleic acid	0.08412	0.08412
Lipoic acid	0.2063	0.2063
Phenol red•Na	1.27	1.27
Putrescine•2HCl	0.1611	0.1611
Sodium pyruvate	110.10	110.10
Thymidine	0.7266	0.7266
Amino Acids		
L-Alanine	8.91	8.91
L-Arginine•HCl	210.70	210.70
L-Asparagine (anhydrous)	15.01	15.01
L-Aspartic acid	13.31	13.31
L-Cysteine•HCl•H ₂ O	35.120	35.120
L-Glutamic acid	14.71	14.71
L-Glutamine	146.20*	146.20*
Glycine	7.51	7.51
L-Histidine•HCl•H ₂ O	20.96	20.96
L-Isoleucine	3.936	3.936
L-Leucine	13.12	13.12
L-Lysine•HCl	36.54	36.54
L-Methionine	4.476	4.476

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L-Phenylalanine	4.956	4.956
L-Proline	34.53	34.53
L-Serine	10.51	10.51
L-Threonine	11.91	11.91
L-Tryptophan	2.042	2.042
L-Tyrosine•2Na•2H ₂ O	7.836	7.836
L-Valine	11.71	11.71
Vitamins		
d-Biotin	0.00733	0.00733
D-Ca pantothenate	0.238	0.238
Choline chloride	13.96	13.96
Folic acid	1.324	1.324
i-Inositol	18.02	18.02
Nicotinamide	0.03663	0.03663
Pyridoxine•HCl	0.06171	0.06171
Riboflavin	0.03764	0.03764
Thiamine•HCl	0.3373	0.3373
Vitamin B ₁₂	1.357	1.357

*Omitted from preparation. Add L-glutamine (Cat.# 118-084-060) to a final concentration of 1mM prior to use.

References: Ham, R.G., (1965) Proc. Nat. Acad. Sci., **63**-288-293 Morton H.J., (1970) In Vitro, **6**:89-108