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HFL04 FORMULATION

Ham's F-12 Medium

With L-Glutamine

Store at 2° to 8°C.

Components	mg/L
Calcium Chloride, Anhydrous ($CaCl_2$)	33.30
Choline Chloride ($C_5H_{14}ONCl$)	13.96
Cupric Sulfate, Pentahydrate ($CuSO_4 \cdot 5H_2O$)	0.0025
D-Biotin ($C_{10}H_{16}N_2O_3S$)	0.0073
D-Calcium Pantothenate ($C_{18}H_{32}CaN_2O_{10}$)	0.4800
D-Glucose, Anhydrous ($C_6H_{12}O_6$)	1802.00
Ferrous Sulfate, Heptahydrate ($FeSO_4 \cdot 7H_2O$)	0.8340
Folic Acid ($C_{19}H_{19}N_7O_6$)	1.3200
Glycine ($C_2H_5NO_2$)	7.50
Hypoxanthine Sodium ($C_5H_4N_4NaO$)	4.77
L-Alanine ($C_3H_7NO_2$)	8.90
L-Arginine, Hydrochloride ($C_6H_{14}N_4O_2 \cdot HCl$)	211.00
L-Asparagine, Monohydrate ($C_4H_8N_2O_3 \cdot H_2O$)	15.00
L-Aspartic Acid ($C_4H_7NO_4$)	13.30
L-Cysteine, hydrochloride, Monohydrate ($C_3H_7NO_2 \cdot HCl \cdot H_2O$)	35.12
L-Glutamic Acid ($C_5H_9NO_4$)	14.70
L-Glutamine ($C_5H_{10}N_2O_3$)	146.20
L-Histidine, Hydrochloride, Monohydrate ($C_6H_9N_3O_2 \cdot HCl \cdot H_2O$)	20.96
L-Isoleucine ($C_6H_{13}NO_2$)	3.94
L-Leucine ($C_6H_{13}NO_2$)	13.10
L-Lysine, Hydrochloride ($C_6H_{14}N_2O_2 \cdot HCl$)	36.50
L-Methionine ($C_5H_{11}NO_2S$)	4.48
L-Phenylalanine ($C_9H_{11}NO_2$)	4.96
L-Proline ($C_5H_9NO_2$)	34.50
L-Serine ($C_3H_7NO_3$)	10.50
L-Threonine ($C_4H_9NO_3$)	11.90
L-Tryptophan ($C_{11}H_{12}N_2O_2$)	2.04
L-Tyrosine, Disodium, Dihydrate ($C_9H_9O_3Na_2 \cdot 2H_2O$)	7.840

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Components	mg/L
L-Valine ($C_5H_{11}NO_2$)	11.70
Linoleic Acid ($C_{18}H_{32}O_2$)	0.088
Lipoic Acid (DL-Thioctic Acid) ($C_8H_{14}O_2S_2$)	0.210
Magnesium Chloride, Anhydrous ($MgCl_2$)	57.22
Myo-Inositol ($C_6H_{12}O_6$)	18.02
Niacinamide/Nicotinamide ($C_6H_6N_2O$)	0.0370
Phenol Red, Sodium Salt ($C_{19}H_{13}NaO_5S$)	1.20
Potassium Chloride (KCl)	223.60
Putrescine, Dihydrochloride ($C_4H_{12}N_2 \cdot 2HCl$)	0.1600
Pyridoxine, Hydrochloride ($C_8H_{11}NO_3 \cdot HCl$)	0.0620
Pyruvic Acid, Sodium Salt ($C_3H_3NaO_3$)	110.00
Riboflavin ($C_{17}H_{20}N_4O_6$)	0.0380
Sodium Bicarbonate ($NaHCO_3$)	1176.00
Sodium Chloride (NaCl)	7599.00
Sodium Phosphate Dibasic, Anhydrous (Na_2HPO_4)	142.00
Thiamine, Hydrochloride ($C_{12}H_{17}ClN_4OS \cdot HCl$)	0.3370
Thymidine ($C_{10}H_{14}N_2O_5$)	0.7300
Vitamin B12 ($C_{63}H_{88}CoN_{14}O_{14}P$)	1.3600
Zinc Sulfate, Heptahydrate ($ZnSO_4 \cdot 7H_2O$)	0.8630

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