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TECHNICAL INFORMATION

Catalog Number: 1042120, 1042122, 1042124

Ham's F-12 Medium, powder, with L-glutamine, without sodium bicarbonate

Description: Originally, Ham's Nutrient Mixtures were developed for the clonal growth of several Chinese hamster ovary (CHO) clone cells, Hela cells and mouse L-cells. Both F-10 and F-12 are formulated for use with or without serum, depending on the type of cells being cultured. F-10 has demonstrated satisfactory growth of human diploid cells, white blood cells for chromosomal analysis and primary rat, rabbit and chicken tissue explants. Ham's F-12 is well suited for the growth of primary rat hepatocytes and prostate epithelial cells. It is also the medium of choice for toxicity assays using CHO cells. MP also offers Ham's F-12 supplemented with 25 mM HEPES for improved buffering in the optimum pH range of 7.2-7.4.

F12K is a modification of Ham's F-12 and Coon's F-12 with increased amino acid and pyruvate concentrations. Additionally, the salts have been modified (Konigsbergs). F12K has been developed for culturing differentiated rat and chicken cells, as well as, primary human liver cells.

MgCl₂ has been substituted by MgSO₄ containing an equivalent amount of Mg ion.

Formulation:

Components	mg/L	Mol. Wt.	Mol. (mM)
Amino Acids			
L-Alanine	8.9000	89.1	0.10
L-Arginine HCl	211.0000	174.2	1.21
L-Asparagine H ₂ O	15.0000	150.1	0.10
L-Aspartic Acid	13.3000	133.1	0.10
L-Cysteine HCl H ₂ O	35.1200	175.6	0.20
L-Glutamic Acid	14.7000	147.1	0.10
L-Glutamine	146.2000	146.1	1.00
Glycine	7.5000	75.07	0.10
L-Histidine HCl H ₂ O	20.9600	209.6	0.10

L-Isoleucine	3.9400	131.2	0.03
L-Leucine	13.1000	131.2	0.10
L-Lysine HCl	36.5000	182.6	0.20
L-Methionine	4.4800	149.2	0.03
L-Phenylalanine	4.9600	165.2	0.03
L-Proline	34.5000	115.1	0.30
L-Serine	10.5000	105.1	0.10
L-Threonine	11.9000	119.1	0.10
L-Tryptophan	2.0400	204.2	0.01
L-Tyrosine 2Na 2H ₂ O	7.8400	261.2	0.03
L-Valine	11.7000	117.1	0.10
Vitamins			
Biotin	0.0073	244.3	0.00003
Choline Chloride	13.9600	139.6	0.1000
D-Calcium Pantothenate	0.4800	238.3	0.0020
Folic Acid	1.3000	441.4	0.0029
myo-Inositol	18.0200	180.2	0.1000
Nicotinamide	0.0370	122.13	0.0003
Pyridoxine HCl	0.0620	205.6	0.0003
Riboflavin	0.0380	376.4	0.0001
Thiamine HCl	0.3400	337.3	0.0010
Vitamin B12	1.3600	1355.4	0.0010
Inorganic Salts			

Calcium Chloride [CaCl ₂]	33.3000	111	0.30
Cupric Sulfate [CuSO ₄]	0.0016	159.68	0.00001
Ferrous Sulfate [FeSO ₄ 7H ₂ O] Heptahydrate	0.8340	278	0.0030
Magnesium Sulfate [MgSO ₄]	72.2000	120.4	0.60
Potassium Chloride [KCl]	223.6000	74.55	3.00
Sodium Chloride [NaCl]	7600.0000	58.44	130.05
Sodium Phosphate Dibasic [Na ₂ HPO ₄]	142.0000	141.96	1.00
Zinc Sulfate [ZnSO ₄ 7H ₂ O] Heptahydrate	0.8630	287.5	0.0030
Other			
Dextrose	1802.0000	180.2	10.00
Hypoxanthine Na	4.7700	159.08	0.03
Lipoic Acid	0.2100	206.3	0.0010
Methyl Linoleate	0.0880	294.5	0.0003
Phenol Red Sodium Salt	1.2000	376.4	0.0032
Putrescine 2HCl	0.1600	161.1	0.0010
Sodium Pyruvate	110.0000	110	1.00
Thymidine	0.7300	242.2	0.0030
Add			
NaHCO ₃ Powder (g/L)	1.1760		
NaHCO ₃ 7.5% Solution (mL/L)	15.7100		

Availability:

1X Liquid:

Ham's F-10 Medium:

Catalog Number	Description	Size
1240249	1X Ham's F-10 without L-glutamine	100 ml
1240254		500 ml

1240349	1X Ham's F-10 with L-glutamine	100 ml
1240354		500 ml
1240449	1X Ham's F-10 with 20 mM HEPES, without L-glutamine, sodium bicarbonate	100 ml
1240454		500 ml

Ham's F-12 Medium:

Catalog Number	Description	Size
1242354	1X Ham's F-12 with L-glutamine	500 ml
1242254	1X Ham's F-12 without L-glutamine	500 ml
1242454	1X Ham's F-12 Kaighn's Modification	500 ml

Dulbecco's Modification of Eagle's Medium/Ham's F-12 Medium:

Catalog Number	Description	Size
1246754	1X DMEM/Ham's F-12 (1:1) without L-glutamine	500 ml

10X Liquid:

Ham's F-10 Medium:

Catalog Number	Description	Size
1440049	10X Ham's F-10 without L-glutamine, sodium bicarbonate	100 ml

Powders:

Ham's F-10 Medium:

Catalog Number	Description	Size
1040120	Ham's F-10 with L-glutamine without sodium bicarbonate	10 x 1 liter
1040122		1 x 10 liter
1040124		1 x 50 liter
1040220	Ham's F-10 with L-glutamine without sodium bicarbonate, hypoxanthine	10 x 1 liter
1040222		1 x 10 liter
1040222		1 x 50 liter

Ham's F-12 Medium:

Catalog Number	Description	Size
1042120	Ham's F-12 with L-glutamine without sodium bicarbonate	10 x 1 liter
1042122		1 x 10 liter

References:

- Ham, R.G., *Exptl. Cell Res.*, v. **39**, 515 (1963).
- Morton, H.J., *In Vitro*, v. **6**, 89 (1970).
- Rutaky, L.P. and Pumper, R.W., *In Vitro*, v. **9**, 648 (1974).
- Soloman, J.J., *TCA manual*, v. **1**, 7 (1975).