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TECHNICAL INFORMATION

Catalog Number: 1040120, 1040122, 1040124

Ham's F-10 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		Mol. Wt.	Mol. (mM)
Amino Acids	mg/L		
L-Alanine		89.1	0.10
L-Arginine HCl	9.0000	174.2	1.21
L-Asparagine H ₂ O	211.0000	150.1	0.10
L-Aspartic Acid	15.0000	133.1	0.10
L-Cysteine HCl H ₂ O	13.0000	175.6	0.20
L-Glutamic Acid	35.1000	147.1	0.10
L-Glutamine	14.7000	146.1	1.00
Glycine	146.2000	75.07	0.10
L-Histidine HCl H ₂ O	7.5000	209.6	0.11
	23.0000		

L-Isoleucine		131.2	0.02
L-Leucine	2.6000	131.2	0.10
L-Lysine HCl	13.0000	182.6	0.16
L-Methionine	29.0000	149.2	0.03
L-Phenylalanine	4.4800	165.2	0.03
L-Proline	5.0000	115.1	0.10
L-Serine	11.5000	105.1	0.10
L-Threonine	10.5000	119.1	0.03
L-Tryptophan	3.5700	204.2	0.00
L-Tyrosine 2Na 2H ₂ O	0.6000	261.2	0.01
L-Valine	2.6100	117.1	0.03
Vitamins	3.5000		
Biotin		244.3	0.0001
Choline Chloride	0.0240	139.6	0.0050
D-Calcium Pantothenate	0.6980	238.3	0.0030
Folic Acid	0.7150	441.4	0.0030
myo-Inositol	1.3200	180.2	0.0030
Nicotinamide	0.5410	122.13	0.0050
Pyridoxine HCl	0.6150	205.6	0.0010
Riboflavin	0.2060	376.4	0.0010
Thiamine HCl	0.3760	337.3	0.0030
Vitamin B12	1.0000	1355.4	0.0010
Inorganic Salts	1.3600		

Calcium Chloride [CaCl ₂]		111	0.30
Cupric Sulfate [CuSO ₄]	33.3000	159.68	0.00001
Ferrous Sulfate [FeSO ₄ 7H ₂ O] Heptahydrate	0.0016	278	0.0030
Magnesium Sulfate [MgSO ₄]	0.8340	120.4	0.62
Potassium Chloride [KCl]	74.6000	74.55	3.82
Potassium Phosphate Monobasic [KH ₂ PO ₄]	285.0000	136.09	0.61
Sodium Chloride [NaCl]	83.0000	58.44	126.63
Sodium Phosphate Dibasic [Na ₂ HPO ₄]	7400.0000	141.96	1.08
Zinc Sulfate [ZnSO ₄ 7H ₂ O] Heptahydrate	153.7000	287.5	0.0001
Other	0.0288		
Dextrose		180.2	6.10
Hypoxanthine Na	1100.0000	159.08	0.03
Lipoic Acid	4.7700	206.3	0.0010
Phenol Red Sodium Salt	0.2000	376.4	0.0032
Sodium Pyruvate	1.2000	110	1.00
Thymidine	110.0000	242.2	0.0030
Add	0.7300		
NaHCO ₃ Powder (g/L)		1.2000	
NaHCO ₃ 7.5% Solution (mL/L)		16.0300	

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).