

## Product Information

**Nutrient Mixture F-12 Ham, 1× Liquid  
with L-glutamine and sodium bicarbonate**Catalog Number **N6658**

Ham's Nutrient Mixtures were originally developed to support clonal growth of several clones of Chinese hamster ovary (CHO) cells, as well as clones of HeLa and mouse L-cells. Both mixtures were formulated for use with or without serum supplementation, depending on the cell type being cultured. Ham's F-10 has been shown to support the growth of human diploid cells, white blood cells for chromosomal analysis, and primary explants of rat, rabbit, and chicken tissues.

Ham's F-12 has been used for the growth of primary rat hepatocytes and rat prostate epithelial cells. A clonal toxicity assay using CHO cells has also been reported with Ham's F-12 as the medium of choice. Ham's F-12 is also available with 25 mM HEPES buffer, which provides more effective buffering in the optimal pH range of 7.2–7.4.

Component	g/L
<b>Inorganic Salts</b>	
CaCl <sub>2</sub>	0.0333
CuSO <sub>4</sub> · 5H <sub>2</sub> O	0.0000025
FeSO <sub>4</sub> · 7H <sub>2</sub> O	0.000834
MgCl <sub>2</sub> · 6H <sub>2</sub> O	0.123
KCl	0.224
NaCl	7.599
NaHCO <sub>3</sub>	1.176
Na <sub>2</sub> HPO <sub>4</sub>	0.14204
ZnSO <sub>4</sub> · 7H <sub>2</sub> O	0.000863
<b>Amino Acids</b>	
L-Alanine	0.009
L-Arginine · HCl	0.211
L-Asparagine · H <sub>2</sub> O	0.01501
L-Aspartic Acid	0.0133
L-Cysteine · HCl · H <sub>2</sub> O	0.035
L-Glutamic Acid	0.0147
L-Glutamine	0.146
Glycine	0.00751
L-Histidine · HCl · H <sub>2</sub> O	0.02096
L-Isoleucine	0.00394
L-Leucine	0.0131
L-Lysine · HCl	0.0365
L-Methionine	0.00448
L-Phenylalanine	0.00496
L-Proline	0.0345
L-Serine	0.0105
L-Threonine	0.0119
L-Tryptophan	0.00204
L-Tyrosine · 2Na · 2H <sub>2</sub> O	0.00778
L-Valine	0.0117

Component	g/L
<b>Vitamins</b>	
D-Biotin	0.0000073
Choline Chloride	0.01396
Folic Acid	0.00132
<i>myo</i> -Inositol	0.018
Niacinamide	0.000037
D-Pantothenic Acid · ½Ca	0.00048
Pyridoxine · HCl	0.000062
Riboflavin	0.000038
Thiamine · HCl	0.00034
Vitamin B <sub>12</sub>	0.00136
D-Glucose	1.802
Hypoxanthine	0.00408
Linoleic Acid	0.000084
Phenol Red · Na	0.0013
Putrescine · HCl	0.000161
Pyruvic Acid · Na	0.11
Thioctic Acid	0.00021
Thymidine	0.00073

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