

# Product Information

## Ham's Nutrient Mixture F12

with 1.0 mM L-glutamine

CATALOG NO. 51651C

### Description

Ham's Nutrient Mixture F12 was originally developed for the serum-free clonal growth of Chinese hamster ovary (CHO) cells, lung cells and mouse L-cells. It is frequently used with dialyzed serum, hormones, selenium and other supplements for serum-free cultures. It is the medium of choice for supporting the growth of cells of rodent origin, particularly rabbit and rat, and has proven to be an excellent cloning medium for myeloma and hybridoma cells.

### Precautions

Use aseptic technique when handling or supplementing this medium. This product is for further manufacturing use. THIS PRODUCT IS NOT INTENDED FOR HUMAN OR THERAPEUTIC USE.

### Storage

Store medium at 2 to 8 C, protected from light. Do not freeze. Do not use after the expiration date.

### Indications of Deterioration

Medium should be clear of particulates and flocculent material. Do not use if medium is cloudy or contains precipitate. Other evidence of deterioration may include color change, pH shift or degradation of physical or performance characteristics.

### Preparation Instructions

Supplements, such as antibiotics, can be added as sterile supplements to the sterilized solution using aseptic technique. Storage conditions and shelf-life of the supplemented product may be affected by the nature of the supplements. Sterile serum should not be refiltered before or after being added to sterile medium because growth promoting capacity may be reduced upon refiltration.

### Formulation

Component (all components measured in mg/L)	
<b>INORGANIC SALTS</b>	
Calcium chloride anhydrous	33.220
Cupric sulfate pentahydrate	0.00249
Ferrous sulfate heptahydrate	0.834
Magnesium chloride anhydrous	57.220
Potassium chloride	223.650
Sodium bicarbonate	1176.000
Sodium chloride	7599.000
Sodium phosphate dibasic anhydrous	142.040
Zinc sulfate heptahydrate	0.863
<b>VITAMINS</b>	
Biotin	0.00733
D-calcium pantothenate	0.238
Choline chloride	13.960
Cyanocobalamin	1.357
Folic acid	1.300
i-inositol	18.020
Niacinamide	0.03663
Pyridoxine HCl	0.06171
Riboflavin	0.03764
Thiamine HCl	0.03373
<b>AMINO ACIDS</b>	
L-alanine	8.910
L-arginine HCl	210.700
L-asparagine monohydrate	15.010
L-aspartic acid	13.310
L-cysteine HCl monohydrate	35.120
L-glutamic acid anhydrous	14.710
L-glutamine	146.200
Glycine	7.510
L-histidine HCl monohydrate	20.960
L-isoleucine	3.936
L-leucine	13.120
L-lysine HCl	36.540
L-methionine	4.476
L-phenylalanine	4.956
L-proline	34.530
L-serine	10.510
L-threonine	11.910
L-tryptophan	2.042
L-tyrosine 2Na	7.780
L-valine	11.710
<b>OTHER</b>	
Dextrose anhydrous	1801.600
Hypoxanthine sodium salt	4.770
Linoleic acid	0.08412
DL- $\alpha$ -Lipoic acid	0.2063
Phenol red sodium salt	1.2740
Putrescine 2HCl	0.161
Sodium pyruvate	110.100
Thymidine	0.7266

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## Characteristics

### Appearance

Clear red-orange solution

### Endotoxin

≤ 1.0 EU/mL

### Osmolality (as supplied)

275 - 315 mOsm/kg H<sub>2</sub>O

### pH (as supplied)

7.0 - 7.4

### Sterility

No microbial growth detected

## References

1. Ham, R. G., *PNAS* (1965) 53:288.

#### Warranty, Limitation of Remedies

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