



# **Product Specification**

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## **Technical Information**

#### **Nutrient Mixture F-10 Ham**

With L-Glutamine and sodium bicarbonate 1X Liquid Cell Culture Medium

### Product Code: AL1024A

**Application:-** Ham's Nutrient Mixtures were originally developed for single cell plating of near diploid Chinese hamster ovary (CHO) 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.

Ham's Nutrient Mixture F-10 was designed for clonal growth of CHO cells and chick embryo cells under serum free conditions. It is now widely used for culturing a variety of cells which include human diploid cells and white blood cells for chromosomal analysis and primary explants of rat, rabbit and chicken tissues.

AL1024A is Nutrient Mixture F-10 Ham with L-glutamine and sodium bicarbonate. Users are advised to review the literature for recommendations regarding medium supplementation and physiological growth requirements specific for different cell lines.

Ferric sulphate heptahydrate Magnesium sulphate anhydrous Potassium chloride Potassium dihydrogen phosphate Sodium bicarbonate Sodium chloride Sodium phosphate dibasic anhydrous Zinc sulphate heptahydrate AMINO ACIDS Glycine L-Alanine L-Arginine hydrochloride L-Asparagine anhydrous L-Aspartic acid L-Glutamine L-Glutamine L-Glutamine L-Histidine hydrochloride monohydrate L-Isoleucine L-Isoleucine L-Leucine  0.834 74.730 74.74 74.700 75.1	Composition** Ingredients	mg / Litre
Copper sulphate pentahydrate Ferric sulphate heptahydrate Magnesium sulphate anhydrous Potassium chloride Potassium dihydrogen phosphate Sodium bicarbonate Sodium chloride Sodium phosphate dibasic anhydrous Zinc sulphate heptahydrate L-Alanine L-Arginine hydrochloride L-Aspartic acid L-Glutamic acid L-Glutamine L-Histidine hydrochloride monohydrate L-Isoileucine L-Leucine L-Lysine hydrochloride L-Henrylalanine L-Henrylalan	INORGANIC SALTS	-
Ferric sulphate heptahydrate Magnesium sulphate anhydrous Potassium chloride Potassium dihydrogen phosphate Sodium bicarbonate Sodium chloride Sodium phosphate dibasic anhydrous Zinc sulphate heptahydrate L-Alanine L-Arginine hydrochloride L-Asparagine anhydrous L-Aspartic acid L-Glutamic acid L-Glutamine L-Histidine hydrochloride monohydrate L-Isoleucine L-Leucine L-Lysine hydrochloride L-Henylalanine L-Henyl	Calcium chloride dihydrate	44.100
Magnesium sulphate anhydrous Potassium chloride Potassium dihydrogen phosphate Sodium bicarbonate Sodium chloride Sodium phosphate dibasic anhydrous Zinc sulphate heptahydrate AMINO ACIDS Glycine L-Alanine L-Arginine hydrochloride L-Asparagine anhydrous L-Cysteine dihydrochloride L-Glutamic acid L-Glutamine L-Histidine hydrochloride monohydrate L-Isoleucine L-Leucine L-Lysine hydrochloride L-Rysine hydrochloride L-Lysine hydrochloride L-Rysine hydrochlori	Copper sulphate pentahydrate	0.0025
Potassium chloride Potassium dihydrogen phosphate Sodium bicarbonate Sodium bicarbonate Sodium chloride Sodium chloride Sodium phosphate dibasic anhydrous Tinc sulphate heptahydrate Tinc sulphate heptahydrate  AMINO ACIDS Glycine L-Alanine L-Arginine hydrochloride L-Asparagine anhydrous L-Aspartic acid L-Cysteine dihydrochloride L-Glutamine L-Glutamine L-Histidine hydrochloride monohydrate L-Isoleucine L-Leucine L-Lysine hydrochloride L-Lysine hydrochloride L-Lysine hydrochloride L-Lysine hydrochloride L-Lysine hydrochloride L-Methionine L-Methionine L-Phenylalanine 4.960	Ferric sulphate heptahydrate	0.834
Potassium dihydrogen phosphate 1200.000 Sodium bicarbonate 1200.000 Sodium chloride 7400.000 Sodium phosphate dibasic anhydrous 153.700 Zinc sulphate heptahydrate 0.0288  AMINO ACIDS Glycine 7.510 L-Alanine 8.910 L-Arginine hydrochloride 211.000 L-Asparagine anhydrous 15.010 L-Aspartic acid 13.300 L-Cysteine dihydrochloride 35.130 L-Glutamic acid 14.700 L-Glutamine 146.000 L-Histidine hydrochloride monohydrate 21.000 L-Isoleucine 2.600 L-Leucine 13.100 L-Lysine hydrochloride 29.300 L-Methionine 4.480 L-Phenylalanine 4.960	Magnesium sulphate anhydrous	74.730
Sodium bicarbonate 1200.000 Sodium chloride 7400.000 Sodium phosphate dibasic anhydrous 153.700 Zinc sulphate heptahydrate 0.0288  AMINO ACIDS Glycine 7.510 L-Alanine 8.910 L-Arginine hydrochloride 211.000 L-Asparagine anhydrous 15.010 L-Aspartic acid 13.300 L-Cysteine dihydrochloride 35.130 L-Glutamic acid 14.700 L-Glutamine 146.000 L-Histidine hydrochloride monohydrate 21.000 L-Isoleucine 2.600 L-Leucine 13.100 L-Lysine hydrochloride 29.300 L-Methionine 4.480 L-Phenylalanine 4.960	Potassium chloride	285.000
Sodium chloride 7400.000 Sodium phosphate dibasic anhydrous 153.700 Zinc sulphate heptahydrate 0.0288  AMINO ACIDS Glycine 7.510 L-Alanine 8.910 L-Arginine hydrochloride 211.000 L-Asparagine anhydrous 15.010 L-Aspartic acid 13.300 L-Cysteine dihydrochloride 35.130 L-Glutamic acid 14.700 L-Glutamine 146.000 L-Histidine hydrochloride monohydrate 21.000 L-Isoleucine 2.600 L-Leucine 13.100 L-Lysine hydrochloride 29.300 L-Methionine 4.480 L-Phenylalanine 4.960	Potassium dihydrogen phosphate	83.000
Sodium phosphate dibasic anhydrous Zinc sulphate heptahydrate  AMINO ACIDS  Glycine  L-Alanine  L-Arginine hydrochloride  L-Asparagine anhydrous  L-Aspartic acid  L-Cysteine dihydrochloride  L-Glutamic acid  L-Glutamine  L-Glutamine  L-Histidine hydrochloride monohydrate  L-Isoleucine  L-Leucine  L-Lysine hydrochloride  L-Lysine hydrochloride  L-Methionine  L-Methionine  L-Phenylalanine  15.010  211.000	Sodium bicarbonate	1200.000
Zinc sulphate heptahydrate 0.0288  AMINO ACIDS  Glycine 7.510  L-Alanine 8.910  L-Arginine hydrochloride 211.000  L-Asparagine anhydrous 15.010  L-Aspartic acid 13.300  L-Cysteine dihydrochloride 35.130  L-Glutamic acid 14.700  L-Glutamine 146.000  L-Histidine hydrochloride monohydrate 21.000  L-Isoleucine 2.600  L-Leucine 13.100  L-Lysine hydrochloride 29.300  L-Methionine 4.480  L-Phenylalanine 4.960	Sodium chloride	7400.000
AMINO ACIDS  Glycine 7.510  L-Alanine 8.910  L-Arginine hydrochloride 211.000  L-Asparagine anhydrous 15.010  L-Aspartic acid 13.300  L-Cysteine dihydrochloride 35.130  L-Glutamic acid 14.700  L-Glutamine 146.000  L-Histidine hydrochloride monohydrate 21.000  L-Isoleucine 2.600  L-Leucine 13.100  L-Lysine hydrochloride 29.300  L-Methionine 4.480  L-Phenylalanine 4.960	Sodium phosphate dibasic anhydrous	153.700
Glycine       7.510         L-Alanine       8.910         L-Arginine hydrochloride       211.000         L-Asparagine anhydrous       15.010         L-Aspartic acid       13.300         L-Cysteine dihydrochloride       35.130         L-Glutamic acid       14.700         L-Glutamine       146.000         L-Histidine hydrochloride monohydrate       21.000         L-Isoleucine       2.600         L-Leucine       13.100         L-Lysine hydrochloride       29.300         L-Methionine       4.480         L-Phenylalanine       4.960	Zinc sulphate heptahydrate	0.0288
L-Alanine       8.910         L-Arginine hydrochloride       211.000         L-Asparagine anhydrous       15.010         L-Aspartic acid       13.300         L-Cysteine dihydrochloride       35.130         L-Glutamic acid       14.700         L-Glutamine       146.000         L-Histidine hydrochloride monohydrate       21.000         L-Isoleucine       2.600         L-Leucine       13.100         L-Lysine hydrochloride       29.300         L-Methionine       4.480         L-Phenylalanine       4.960	AMINO ACIDS	
L-Arginine hydrochloride       211.000         L-Asparagine anhydrous       15.010         L-Aspartic acid       13.300         L-Cysteine dihydrochloride       35.130         L-Glutamic acid       14.700         L-Glutamine       146.000         L-Histidine hydrochloride monohydrate       21.000         L-Isoleucine       2.600         L-Leucine       13.100         L-Lysine hydrochloride       29.300         L-Methionine       4.480         L-Phenylalanine       4.960	Glycine	7.510
L-Asparagine anhydrous       15.010         L-Aspartic acid       13.300         L-Cysteine dihydrochloride       35.130         L-Glutamic acid       14.700         L-Glutamine       146.000         L-Histidine hydrochloride monohydrate       21.000         L-Isoleucine       2.600         L-Leucine       13.100         L-Lysine hydrochloride       29.300         L-Methionine       4.480         L-Phenylalanine       4.960	L-Alanine	8.910
L-Aspartic acid 13.300 L-Cysteine dihydrochloride 35.130 L-Glutamic acid 14.700 L-Glutamine 146.000 L-Histidine hydrochloride monohydrate 21.000 L-Isoleucine 2.600 L-Leucine 13.100 L-Lysine hydrochloride 29.300 L-Methionine 4.480 L-Phenylalanine 4.960	L-Arginine hydrochloride	211.000
L-Cysteine dihydrochloride 35.130  L-Glutamic acid 14.700  L-Glutamine 146.000  L-Histidine hydrochloride monohydrate 21.000  L-Isoleucine 2.600  L-Leucine 13.100  L-Lysine hydrochloride 29.300  L-Methionine 4.480  L-Phenylalanine 4.960	L-Asparagine anhydrous	15.010
L-Glutamic acid       14.700         L-Glutamine       146.000         L-Histidine hydrochloride monohydrate       21.000         L-Isoleucine       2.600         L-Leucine       13.100         L-Lysine hydrochloride       29.300         L-Methionine       4.480         L-Phenylalanine       4.960	L-Aspartic acid	13.300
L-Glutamine 146.000 L-Histidine hydrochloride monohydrate 21.000 L-Isoleucine 2.600 L-Leucine 13.100 L-Lysine hydrochloride 29.300 L-Methionine 4.480 L-Phenylalanine 4.960	L-Cysteine dihydrochloride	35.130
L-Histidine hydrochloride monohydrate 21.000 L-Isoleucine 2.600 L-Leucine 13.100 L-Lysine hydrochloride 29.300 L-Methionine 4.480 L-Phenylalanine 4.960	L-Glutamic acid	14.700
L-Isoleucine 2.600 L-Leucine 13.100 L-Lysine hydrochloride 29.300 L-Methionine 4.480 L-Phenylalanine 4.960	L-Glutamine	146.000
L-Leucine 13.100 L-Lysine hydrochloride 29.300 L-Methionine 4.480 L-Phenylalanine 4.960	L-Histidine hydrochloride monohydrate	21.000
L-Lysine hydrochloride 29.300 L-Methionine 4.480 L-Phenylalanine 4.960	L-Isoleucine	2.600
L-Methionine 4.480 L-Phenylalanine 4.960		13.100
L-Phenylalanine 4.960	L-Lysine hydrochloride	29.300
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L-Proline 11.500	L-Phenylalanine	
	L-Proline	11.500





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Serine	10.500	
Threonine	3.570	
Tryptophan	0.600	
Tyrosine disodium salt	2.610	
L-Valine	3.500	
VITAMINS		
Biotin	0.024	
Choline chloride	0.698	
D-Ca-Pantothenate	0.715	
Folic acid	1.320	
Nicotinamide	0.615	
Pyridoxine hydrochloride	0.206	
Riboflavin	0.376	
Thiamine hydrochloride	1.000	
Vitamin B12	1.360	
-Inositol	0.541	
OTHERS		
D-Glucose	1100.000	
Hypoxanthine sodium salt	4.080	
Lipoic acid	0.210	
Phenol red sodium salt	1.300	
Sodium pyruvate	110.000	
Thymidine	0.730	

## **Quality Control**

#### Appearance

Orangish red colored, clear solution.

### рΗ

7.00 -7.60

### Osmolality in mOsm/Kg H<sub>2</sub>O

285.00 -325.00

#### Sterility

No bacterial or fungal growth is observed after 14 days of incubation, as per USP specification.

#### Cultural Response

The growth promotion capacity of the medium is assessed qualitatively by analyzing the cells for the morphology and quantitatively by estimating the cell counts and comparing it with a control medium through minimum three subcultures.

#### **Endotoxin Content**

NMT 5EU/ml

## Storage and Shelf Life

Store at 2-8°C away from bright light. Shelf life is 12 months. Use before expiry date given on the product label.





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## Disclaimer:

- User must ensure suitability of the product(s) in their application prior to use.
- The product conforms solely to the technical information provided in this booklet and to the best of knowledge research and development work carried at **CDH** is true and accurate.
- Central Drug House Pvt. Ltd. reserves the right to make changes to specifications and information related to the products at any time.
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