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Technical Datasheet

# HiGlutaXL™ Dulbecco's Modified Eagle Medium /Nutrient Mixture F-12 Ham (DMEM/ F12,1:1 mixture)

**With L-Alanyl-L-Glutamine and Trace elements**
**Without HEPES buffer and Sodium bicarbonate**

**Product Code: AT127G**

## Product Description:

Dulbecco's Modified Eagle Medium/Nutrient Mixture F12 Ham (DMEM/F12, 1:1 mixture) was originally formulated for rat neuroblastoma cells and MDCK cells. The mixture is extremely nutritious and supports growth of a wide variety of cells including certain epithelial, endothelial and granulosa cells.

HiGlutaXL™ medium contains the stabilised dipeptide form of L-glutamine, L-alanyl-L-glutamine. HiGlutaXL™ medium offers several advantages over the conventional glutamine containing media. Dipeptide form prevents the intramolecular cyclization reaction, thus preventing toxic build up of ammonia. L-alanyl-L-glutamine incorporates L-alanine that protects the alpha amino acid group. Aminopeptidases within the cell break the dipeptide, gradually releasing both L-glutamine and L-alanine for use by the cell. The gradual release of L-glutamine obviates the need to supplement L-glutamine frequently and allows liquid media to be stored at 4°C.

AT127G is HiGlutaXL™ Dulbecco's Modified Eagle Medium / Nutrient Mixture F-12 Ham(DMEM/F12, 1:1 Mixture) with L-alanyl-L-glutamine and Trace elements. It does not contain HEPES buffer. Users are advised to review the literature for recommendations regarding medium supplementation and physiological growth requirements specific for different cell lines.

## Composition:

| Ingredients | mg/L |
|---|---|
| INORGANIC SALTS | |
| Ammonium metavanadate | 0.00058 |
| Ammonium molybdate tetrahydrate | 0.00618 |
| Calcium chloride dihydrate | 154.500 |
| Copper sulphate pentahydrate | 0.0013 |
| Disodium hydrogen phosphate | 71.020 |
| Ferric nitrate nonahydrate | 0.050 |
| Ferrous sulphate heptahydrate | 0.417 |
| Magnesium chloride hexahydrate | 61.200 |
| Magnesium sulphate anhydrous | 48.840 |
| Manganese sulphate | 0.000151 |
| Nickel chloride | 0.00012 |
| Potassium chloride | 311.800 |
| Sodium chloride | 6996.000 |
| Sodium dihydrogen phosphate | 54.300 |
| Sodium metasillicate nonahydrate | 0.0142 |
| Sodium selenite | 0.00519 |
| Stannous chloride dihydrate | 0.00011 |
| Zinc sulphate heptahydrate | 0.432 |
| **AMINO ACIDS** | |
| Glycine | 18.750 |
| L-Alanine | 4.450 |
| L-Alanyl-L-Glutamine | 543.000 |
| L-Arginine hydrochloride | 147.500 |
| L-Asparagine monohydrate | 7.500 |
| L-Aspartic acid | 6.650 |
| L-Cysteine hydrochloride monohydrate | 31.290 |
| L-Cystine dihydrochloride | 17.560 |
| L-Glutamic acid | 7.350 |
| L-Histidine hydrochloride monohydrate | 31.480 |
| L-Isoleucine | 54.470 |
| L-Leucine | 59.050 |
| L-Lysine hydrochloride | 91.250 |
| L-Methionine | 17.240 |
| L-Phenylalanine | 35.480 |
| L-Proline | 17.250 |
| L-Serine | 26.250 |
| L-Threonine | 53.450 |
| L-Tryptophan | 9.020 |
| L-Tyrosine disodium salt dihydrate | 48.100 |
| L-Valine | 52.850 |
| **VITAMINS** | |
| Choline chloride | 8.980 |
| D-Biotin | 0.0035 |
| D-Ca-Pantothenate | 2.240 |
| Folic acid | 2.660 |



Please refer disclaimer overleaf

| | |
|---|---|
| Niacinamide | 2.020 |
| Pyridoxal hydrochloride | 2.000 |
| Pyridoxine hydrochloride | 0.031 |
| Riboflavin | 0.219 |
| Thiamine hydrochloride | 2.170 |
| Vitamin B12 | 0.680 |
| myo-Inositol | 12.600 |
| **OTHERS** | |
| D-Glucose | 3151.000 |
| DL-Thioctic acid | 0.105 |
| Hypoxanthine sodium salt | 2.400 |
| Linoleic acid | 0.042 |
| Phenol red sodium salt | 8.630 |
| Putrescine hydrochloride | 0.081 |
| Sodium pyruvate | 110.000 |
| Thymidine | 0.365 |

## Directions :

1. Suspend 12.3gms in 900ml tissue culture grade water with constant, gentle stirring until the powder is completely dissolved. Do not heat the water.
2. Add 1.2gms of sodium bicarbonate powder (TC230) or 16.0ml of 7.5% sodium bicarbonate solution (TCL013) and 0.365gms of L-glutamine powder (TC243) or 12.5ml of 200mM L-glutamine solution (TCL012) for 1 litre of medium and stir until dissolved.
3. Adjust the pH to 0.2 - 0.3 pH units below the desired pH using 1N HCl or 1N NaOH since the pH tends to rise during filtration.
4. Make up the final volume to 1000ml with tissue culture grade water.
5. Sterilize the medium immediately by filtering through a sterile membrane filter with a porosity of 0.22 micron or less, using positive pressure rather than vacuum to minimize the loss of carbon dioxide.
6. Aseptically add sterile supplements as required and dispense the desired amount of sterile medium into sterile containers.
7. Store liquid medium at 2-8°C and in dark till use.

## Material required but not provided :

Tissue culture grade water (TCL010)

Sodium bicarbonate (TC230)

Sodium bicarbonate solution 7.5% (TCL013)

1N Hydrochloric acid (TCL003)

1N Sodium hydroxide (TCL002)

Foetal bovine serum (RM1112/RM10432)

## Quality Control:

**Appearance**
White to light pink, homogenous powder

**Solubility**
Clear solution at 12.3gms/L

**pH without Sodium Bicarbonate**
6.00 -6.60

**pH with Sodium Bicarbonate**

7.20 -7.80

**Osmolality without Sodium Bicarbonate(mOsm/Kg $H_2O$)**

260.00 -300.00

**Osmolality with Sodium Bicarbonate(mOsm/kg $H_2O$)**
285.00 -325.00

**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.

**Endotoxin Content**
NMT 1EU/ml

## Storage and Shelf Life:

1. All the powdered media and prepared liquid culture media should be stored at 2-8°C. Use before the expiry date. In spite of above recommended storage condition, certain powdered medium may show some signs of deterioration /degradation in certain instances. This can be indicated by change in colour, change in appearance and presence of particulate matter and haziness after dissolution.
2. Preparation of concentrated medium is not recommended since free base amino acids and salt complexes having low solubility may precipitate in concentrated medium.
3. pH and sodium bicarbonate concentration of the prepared medium are critical factors affecting cell growth. This is also influenced by amount of medium and volume of culture vessel used (surface to volume ratio). For example, in large bottles, such as Roux bottles pH tends to rise perceptibly as significant volume of carbon dioxide is released. Therefore, optimal conditions of pH, sodium bicarbonate concentration, surface to volume ratio must be determined for each cell type. We recommend stringent monitoring of pH. If needed, pH can be adjusted by using sterile 1N HCl or 1N NaOH or by bubbling in carbon dioxide.
4. If required, supplements can be added to the medium prior to or after filter sterilization observing sterility precautions. Shelf life of the medium will depend on the nature of supplement added to the medium.

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