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# ProductInformation

**DULBECCO'S MODIFIED EAGLE'S MEDIUM [DME]**
**AUTO-MOD™**
With 1000 mg/L Glucose
Without L-Glutamine and Sodium Bicarbonate

Product Number **D5280**
Storage Temperature 2-8°C

## Product Description

Many modifications of Eagle's medium have been developed since the original formulation appeared in the literature. Among the most widely used of these modifications is Dulbecco's Modified Eagle's Medium [DME]. DME is a modification of Minimum Essential Medium Eagle [MEM] that contains a higher concentration of vitamins, amino acids as well as additional supplementary components.The original DME formula contains 1000 mg/L of glucose although a further modification with 4500 mg/L glucose has proven successful in the cultivation of certain cell types.

DULBECCO'S MODIFIED EAGLE'S MEDIUM [DME] AUTO-MOD™, Product No. D 5280 is one of the cell culture media available from Sigma. The selection of a nutrient medium is strongly influenced by 1] type of cell, 2] type of culture [monolayer, suspension, clonal] and 3] degree of chemical definition necessary. It is important to review the literature for recommendations concerning medium, supplementation and physiological parameters required for a specific cell line.

| **Components** | g/L |
|---|---|
| L-Arginine•HCl | 0.084 |
| L-Cystine•2HCl | 0.0626 |
| Glycine | 0.03 |
| L-Histidine•HCl• $H_2O$ | 0.042 |
| L-Isoleucine | 0.105 |
| L-Leucine | 0.105 |
| L-Lysine•HCl | 0.146 |
| L-Methionine | 0.03 |
| L-Phenylalanine | 0.066 |
| L-Serine | 0.042 |
| L-Threonine | 0.095 |
| L-Tryptophan | 0.016 |
| L-Tyrosine | 0.072 |
| L-Valine | 0.094 |
| Choline Bitartrate | 0.0072 |
| Folic Acid | 0.004 |
| myo-Inositol | 0.0072 |
| Niacinamide | 0.004 |
| D-Pantothenic Acid Hemicalcium | 0.004 |
| Pyridoxal•HCl | 0.004 |
| Riboflavin | 0.0004 |
| Thiamine•HCl | 0.004 |
| Calcium Chloride•$2H_2O$ | 0.265 |
| Ferric Nitrate | 0.0001 |
| Magnesium Sulfate [Anhydrous] | 0.09767 |
| Potassium Chloride | 0.4 |
| Sodium Chloride | 6.4 |
| Sodium Phosphate Monobasic [Anhydrous] | 0.109 |
| Succinic Acid | 0.075 |
| Sodium Succinate•$6H_2O$ | 0.1 |
| Sodium Pyruvate | 0.11 |
| Glucose | 1.0 |
| Phenol Red•Na | 0.0093 |

## Precautions and Disclaimer

REAGENT
For In Vitro Diagnostic Use

## Preparation Instructions

Powdered media are extremely hygroscopic and should be protected from atmospheric moisture. The entire contents of each package should be used immediately after opening. Preparing a concentrated solution of medium is not recommended as precipitates may form.

Supplements can be added aseptically to sterile medium. The nature of the supplement may affect storage conditions and shelf life of the medium.

1. Measure out 90% of final required volume of water. Water temperature should be 15-20°C.
2. While gently stirring the water, add the powdered medium. Stir until dissolved.
3. Rinse original package with a small amount of water to remove all traces of powder. Add to solution in step 2.
4. Add additional water to bring the solution to final volume minus the volume of sodium bicarbonate and L-glutamine to be added in step 6.
5. Autoclave medium at 121°C [250°F] at 15 PSI for 15 minutes. Note: The performance of individual autoclaves may vary. We recommend validation of your system.

6. After cooling medium to 15-20°C add 49.3 ml of sterile sodium bicarbonate solution, 7.5% w/v and 20.0 ml of 200mM sterile L-glutamine solution for each liter of final volume of medium being prepared.
7. The final pH of this medium was formulated to be 7.3 ± 0.3. If necessary adjust the pH using 1N HCl or 1N NaOH.
8. Medium can be autoclaved in final storage bottles or dispensed into appropriate sterile containers after autoclaving.

**Storage/Stability**

Store the dry powdered medium at 2-8°C under dry conditions and liquid medium at 2-8°C in the dark. Deterioration of the powdered medium may be recognized by any or all of the following: [1] color change, [2] granulation/clumping, [3] insolubility. Deterioration of the liquid medium may be recognized by any or all of the following: [1] pH change, [2] precipitate or particulate matter throughout the solution, [3] cloudy appearance [4] color change. The nature of supplements added may affect storage conditions and shelf life of the medium. Product label bears expiration date.

**Procedure**

MATERIALS REQUIRED BUT NOT PROVIDED
Water for tissue culture use [W3500]
Sodium Bicarbonate Solution, 7.5% [S8761]
L-Glutamine Solution, 200mM [G7513]
1N Hydrochloric acid [H9892]
1N Sodium Hydroxide [S2770]
Medium additives as required

**Product Profile**

| | |
|---|---|
| Appearance | off-white powder |
| Moisture content | ≤2.0% |
| Solubility | clear solution at 1x concentration |
| pH at room temperature [without sodium bicarbonate] | 4.1 ± 0.3 |
| pH at room temperature [with sodium bicarbonate] | 7.3 ± 0.3 |
| Osmolality [without sodium bicarbonate] | 247 mOsm/kg $H_2O$ ± 5% |
| Osmolality [with sodium bicarbonate] | 310 mOsm/kg $H_2O$ ± 5% |
| Endotoxin | ≤1.0 EU/ml at 1x |
| Amino Acid Analysis by HPLC | Analysis has confirmed that amino acids are present at concentrations consistent with the formula. |
| Key Element Analysis by ICAP | Analysis has confirmed that key elements are present at concentrations consistent with the formula. |

BIOLOGICAL PERFORMANCE CHARACTERISTICS

Biological performance is assessed using an appropriate cell line(s). Growth studies are carried through 2 subculture generations. Cells are counted and growth is plotted as a logarithmic function of time in culture. Seeding efficiencies, doubling time, and final cell densities are determined. During the testing period cultures are examined microscopically for atypical morphology and evidence of cytotoxicity. Test results are available upon request.

**References**


1. Dulbecco, R. and Freeman, G.(1959). Plaque Production by the Polyoma Virus. Virology. 8, 396-397.
2. Smith,J.D., Freeman,G., Vogt,M. and Dulbecco, R.(1960) The Nucleic Acid of Polyoma Virus. Virology. 12, 185-196.
3. Morton, H..J., (1970).A Survey of Commercially Available Tissue Culture Media.In Vitro. 6, 89-108.
4. Rutzky, L.P. and Pumper, R.W., (1974). Supplement to a Survey of Commercially Available Tissue Culture Media(1970). In Vitro. 9, 468-469.


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