# M 199

(Medium 199)

**Cat. No. CPM111**

**With Earle's Salts**
**With L-Glutamine**
**With Sodium Bicarbonate**

## 1. Product Description

Medium 199 was originally developed as a serum-free medium for primary cultures, particularly suitable for the culture of non-transformed cells. It is subsequently used with serum supplementation for virus research, vaccine production, and the culture of various cell types. This product does not contain HEPES, which can be aseptically added if needed for enhanced pH buffering capacity.

## 2. Composition

**Concentration: mg/L**

| Amino Acids | mg/L |
|---|---|
| L-Alanine | 25.00 |
| L-Arginine·HCl | 70.00 |
| L-Aspartic Acid | 30.00 |
| L-Cysteine·HCl·$H_2O$ | 0.10 |
| L-Cystine·2HCl | 26.00 |
| L-Glutamic Acid | 75.00 |
| L-Glutamine | 100.00 |
| Glycine | 50.00 |
| L-Histidine·HCl·$H_2O$ | 22.00 |
| L-Isoleucine | 40.00 |
| L-Leucine | 60.00 |
| L-Lysine·HCl | 70.00 |
| L-Methionine | 15.00 |
| L-Phenylalanine | 25.00 |
| L-Proline | 40.00 |
| L-Serine | 25.00 |
| L-Threonine | 30.00 |
| L-Tryptophan | 10.00 |
| L-Tyrosine·2Na·$2H_2O$ | 58.00 |
| L-Valine | 25.00 |

| Vitamins & Others | mg/L |
|---|---|
| Ascorbic Acid | 0.05 |
| α-Tocopherol $PO_4$-Na | 0.01 |
| Biotin | 0.01 |
| Calciferol | 0.10 |
| D-Ca Pantothenate | 0.01 |
| Choline Chloride | 0.50 |
| Folic Acid | 0.01 |
| i-Inositol | 0.05 |
| Menadione (bisulfite) | 0.01 |
| Niacin / Niacinamide | 0.025 |
| p-Aminobenzoic Acid | 0.05 |
| Pyridoxal·HCl | 0.025 |
| Pyridoxine·HCl | 0.025 |
| Riboflavin | 0.01 |
| Thiamine·HCl | 0.01 |
| Vitamin A (acetate) | 0.14 |
| Adenine Sulfate | 10.00 |
| ATP / Adenosine-5-$PO_4$ | 1.00 |
| Cholesterol | 0.20 |
| 2-Deoxy-D-ribose | 0.50 |
| D-Glucose | 1000.00 |
| Glutathione (reduced) | 0.05 |
| Guanine·HCl | 0.30 |
| HEPES | — |
| Hypoxanthine, Na | 0.40 |
| Phenol Red | 20.00 |
| Ribose | 0.50 |
| Sodium Acetate | 50.00 |
| Thymidine | 0.30 |
| Tween 80 | 20.00 |
| Uracil | 0.30 |
| Xanthine·HCl | 0.34 |

| Inorganic Salts | mg/L |
|---|---|
| $CaCl_2$ | 200.00 |
| $Fe(NO_3)_3·9H_2O$ | 0.72 |
| KCl | 400.00 |
| $MgSO_4$ | 98.00 |
| NaCl | 6800.00 |
| $NaH_2PO_4·H_2O$ | 140.00 |
| $NaHCO_3$ | 2200.00 |

## 3. Product Quality Specifications

| Appearance | pH | Osmolality | Endotoxin | Sterility |
|---|---|---|---|---|
| Red clear liquid | pH 7.3 ± 0.3 | 295 ± 15 mOsm/kg $H_2O$ | < 1 EU/mL | Sterile |

## 4. Storage Conditions and Precautions

Protect from direct light and store refrigerated (2–8°C). Product degradation may appear as precipitates, floating particles, turbidity, or color change; discard if any are observed. Storing against the inner walls of a refrigerator where temperatures may approach 0°C can cause degradation.

## 5. Usage Instructions and Precautions

This product is a sterile solution. Open the cap only in a sterile environment (e.g., a clean bench) using aseptic technique. It is recommended to use the entire contents after opening; otherwise, aliquot into a suitable sterile container and store refrigerated (2–8°C).