



## ZSol:F™ Calcium and Magnesium Free (CMF) Phosphate Buffered Saline (PBS) Solution



**Product Names:** ZSol:F™ (CMF-PBS; no divalent cations)

**Product Codes:** ZSOLF-500, ZSOLF-1000

**General Use:** Buffers for rinsing and processing tissues and cells

**Features:** GMP quality; sterile; USP grade materials; no animal-derived components; no human proteins; no antibiotics

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### General Description

ZSol:F™ CMF-PBS is a sterile, “xeno-free”, GMP-manufactured, chemically defined and ready-to-use bioprocessing solution for cells, freshly isolated tissues or tissue products intended for clinical or research use. ZSol:F™ is also used in various types of assays and for making other biologicals including vaccines, viruses, bacteria, and microbial and eukaryotic cell-derived products. ZSol:F™ does not contain antibiotics. ZSol™ buffers include ZSol:F™ (CMF-PBS) and ZSol:M™ (PBS; contains divalent cations calcium and magnesium) are related buffer solutions.

### Formulation and Packaging

GMP manufactured ZSol™ buffers are formulated with USP grade components. The ZSol™ solutions ZSol:F™ and ZSol:M™ generally contain the same components except that ZSol:M™ contains the divalent cations calcium and magnesium, whereas ZSol:F™ does not. ZSol:F™ is available in 500 mL (ZSOLF-500) and 1000 mL (ZSOLF-1000) sizes of square PETG media bottles.

### Use of ZSol:F™

ZSol:F™ can be used in protocols where CMF-PBS solution is recommended. ZSol:F™ may be used to pre-rinse cell culture monolayers prior to dissociation for subculture. Other ZSol:F™ applications include rinsing cells isolated from tissues, e.g., for transplantation or bioengineering, or to manufacture cell-based products (proteins, hormones, and other materials) that are natural or are derived from genetic engineering methods. These products in turn can be used as pharmaceuticals, therapeutics, diagnostics, or for research and development applications. ZSol:F™ is suitable for bioprocessing procedures from 2°C to 50°C. ZSol:F™ is NOT suitable for cell culture or for cryopreservation.

### Manufacturing

Media are manufactured by sterile 0.22 µm filtration and packaging, using cGMP standards in an ISO Class 7 clean room and ISO Class 5 biosafety cabinet. Raw materials are pre-tested and the final product is checked by quality specifications and acceptance criteria (see below) tested by USP standards for pH, osmolality, sterility (bacteria, fungi), mycoplasma and endotoxin prior to release and preparation of the Certificate of Analysis.

### Specifications

Visual  
 pH (USP<791>)  
 Osmolality (USP<785>)  
 Sterility – SC (USP<71>)  
 Sterility - fTG (USP<71>)  
 Mycoplasma (USP<63>)  
 Endotoxin (USP<85>)  
 Expiration

### Acceptance Criteria

Clear, colorless  
 6.6 to 7.4  
 270 to 300 mmol/kg  
 No microbial growth  
 No microbial growth  
 None detected  
 ≤0.1 EU/mL  
 24 months after manufacturing

ZSol:F™  
CMF-PBS



### Storage

ZSol:F™ CMF-PBS buffer solution is stored at room temperature (15° C to 30°C). The designated shelf life is 24 months from the date of manufacture.

**Table 1. Examples of Human and Animal Tissues, Cells and Other Biological Products for Potential Use of ZSol™ Phosphate Buffered Saline Solutions\* Suitable for Bio-Processing**

Tissue Types	Primary Cell Type(s) Derived
Adipose (Fat)	Mesenchymal Stem Cells; Stromal vascular fraction regenerative cells; adipose cells
Bone Marrow Bone	Hematopoietic and mesenchymal stem cells; various types of renewable progenitor cells; Endothelial cells; entire population; bone & cartilage progenitors; other cells
Brain & Neural (Spinal)	Progenitors; Induction of differentiation
Breast	Primary epithelial cells and/or mesenchymal support cells
Cartilage	Chondrocytes & Progenitors
Colon; Gastrointestinal, incl. oral; esophageal	Primary epithelial and/or mesenchymal support cells or complex tissues in organ-like cultures
Dental Pulp	Hematopoietic and mesenchymal stem cells; various types of renewable progenitor cells; like bone marrow
Heart	Primary muscle and mesenchymal cells
Kidney	Primary epithelial cells and/or mesenchymal support cells
Liver	Primary epithelial cells and/or mesenchymal support cells
Lung	Primary epithelial cells and/or mesenchymal support cells
Lymph Node	Lymphocytes and mesenchymal support cells
Muscles (Peripheral; Heart; Smooth)	Pericytes; Mesenchymal or Stromal Stem Cells; other regenerative cells
Pancreas and Other Neuroendocrine organs	Pancreatic islet beta and acinar cells; other organs (e. g., adrenal)
Parathyroid	Adenoma cells isolated and stored for potential autologous re-transplantation
Peripheral or apheresis blood	Various types of white blood cells, including lymphocytes, macrophages, etc.; Circulating or mesenchymal cells; endothelial cells.
Placenta	Trophoblasts; Syncytiotrophoblasts; Endothelial cells; Hematopoietic and mesenchymal stem cells; various renewable progenitor cells
Prostate	Primary epithelial cells and/or mesenchymal support cells
Skin (adult; newborn)	Epidermal keratinocytes; biopsies; hair follicles Dermal Fibroblasts; Mesenchymal cells
Spleen	Lymphocytes and mesenchymal support cells
Tumors	Epithelial, mesenchymal, lymphoid
Umbilical cord	Hematopoietic and mesenchymal stem cells; various types of renewable progenitor cells; Endothelial cells

\*Choice of buffer solution is based on protocol and processing needs for PBS solution with or without divalent cations.

### **Master Files Applications Note**

ZSol™ media (ZSol:F™ and ZSol:M™) are in FDA Drug or Device Master Files but have not been tested by INCELL for any specific diagnostic or therapeutic use. To inquire about this product or to request use of a Master File call, fax, or email to [masterfiles@incell.com](mailto:masterfiles@incell.com).

**Animal Component Free.** INCELL certifies that these media have no “animal-derived components” per the following criteria:

- No animal-derived components are added by INCELL or come from raw materials supplied as components of the Product.
- Product does not come into contact with animal-derived material during manufacturing, processing, handling, or packaging.
- Our Products are manufactured on dedicated animal free equipment in animal free clean rooms.
- This certification applies only to the condition of the above-described Product in its unopened package, and INCELL assumes no responsibility for a Product failing to meet this Statement after handling or use after opening the package.
- Signed “Animal Origin Statement” can be provided on request.

### **Ordering: Contact INCELL Corporation**

Toll Free: 800.364.1765  
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### **Technical Assistance**

The scientists at INCELL are available to discuss the media or special needs of your cells, and to assist you in your cell culture applications. Call 1-800-364-1765 or e-mail [info@incell.com](mailto:info@incell.com).