
	Document ID:	TDS-ITS-001-10ML	Version:	002
	Date of Issue:	10-JAN-2025	Approved by:	Dr. Iman Kamranfar
	Review Date:	10-JAN-2027	Signature:	
	Title:	<b>TECHNICAL DATASHEET</b>		

### Insulin-Transferrin-Selenium Supplement (100X)

<b>Filtration, Treatment</b>	Sterile Filtered, Serum Free; in EBSS without Phenol Red. Cell culture tested
<b>Product Code</b>	ITS-001-10ML, ITS-001-50ML
<b>Shelf Life</b>	24 Months from DOM
<b>Storage Temperature</b>	2 -8°C, protected from light. Once opened, store at 4° C and use within 2-4 weeks.
<b>Shipping Temperature</b>	Ambient
<b>Working Concentrations</b>	Recommended final concentration: 10 ml/L

### QC Specifications

Physical and Chemical Analysis	Method	Specifications	Units
Appearance	Visual	Clear yellow solution	n/a
pH at RT	Electronic pH Meter	7.5 – 8.2	n/a
Osmolality	Osmometer	Test and Report	mOsm/kg
Endotoxin	LAL Kinetic	< 1.0	EU/ml
<b>Sterility</b>			
Aerobic Bacteria	Internally Validated	Not detected	n/a
Anaerobic Bacteria	Internally Validated	Not detected	n/a
Fungi (Yeast & Mold)	Internally Validated	Not detected	n/a
Mycoplasma	qPCR	Not detected	n/a
Cell Culture (at 10mL/L)	BHK cell line	Pass	n/a
<b>Virology</b>			
Human origin materials are non-reactive (donor level) for anti-HIV 1 & 2, anti-HCV, and HBsAg. Handle in accordance with established bio-safety practices			

### Formulation

Components	Concentration (mg/L)
Human Transferrin (Holo)	550.00
Human Insulin Recombinant Full Chain	1000.00
Sodium Selenite	0.67
Calcium Chloride•2 H2O	265.00
Magnesium Sulfate (anhydrous)	97.67
Potassium Chloride	400.00
Sodium Chloride	6800.00
Sodium Phosphate Monobasic (anhydrous)	122.00
Glucose	1000.00



### Ordering Information

Product Code	Description	Product Information	Storage	Size
ITS-001-10ML	N2 Supplement (100x)	Sterile Filtered, Serum Free	2 -8°C	10 ml
ITS-001-50ML	N2 Supplement (100x)	Sterile Filtered, Serum Free	2 -8°C	50 ml

### GENERAL INFORMATION

**Insulin-Transferrin-Selenium (ITS)** is a supplement commonly used in cell culture media to support the growth and maintenance of various cell types particularly, for low density attachment of many adherent cell types. It provides essential nutrients and growth factors that improve cell survival and proliferation. The three main components of the ITS supplement are:

- Insulin:** A hormone that helps and regulate glucose uptake by cells and stimulates cellular growth and metabolism. In cell culture, insulin promotes the uptake of glucose and amino acids, which are crucial for energy production and biosynthesis.
- Transferrin:** A glycoprotein responsible for binding and transporting iron into cells. Iron is essential for many cellular processes, including DNA synthesis and cellular respiration. In culture, transferrin provides a stable source of iron, which can enhance cell growth and development.

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3. **Selenium:** A trace element that acts as a cofactor for various antioxidant enzymes, such as glutathione peroxidase. Selenium helps protect cells from oxidative damage, which is critical for maintaining cell viability and preventing stress in culture.

Together, these three components help maintain the health and viability of cells in vitro, especially in serum-free or reduced-serum culture conditions. **ITS** is commonly used for culturing primary cells, stem cells, and other sensitive cell lines, where serum may not be ideal or desired.

In many cases, the supplement is added at a **1x final concentration** (after dilution from a 100x stock) to basal media such as DMEM or RPMI. It can support various cell types, including epithelial cells, fibroblasts, and hepatocytes, among others.

#### **INSTRUCTIONS FOR USE**

- Each 10 mL of ITS-001 Supplement is sufficient for up to one liter of medium.
- In general, it is necessary to add 2–4% FBS to achieve optimal growth, although some adherent cultures may require less serum supplementation following initial adaptation.
- Store Insulin-Transferrin-Selenium supplemented medium in the dark at 2°C to 8°C.

#### **PRECAUTIONS AND DISCLAIMER**

This product is for research use only. Please see the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Do not use this medium beyond the expiration date indicated on the product label.

#### **REFERENCES**

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7. McKeegan, W.L., and McKeegan, K.A., (1979). Oxocarboxylic acids, pyrimidine nucleotide-linked oxidoreductase and serum factors in regulation of cell proliferation. *J. Cell Physiol.*, 101, 9-16.
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**Product Use:** This product is intended for laboratory use only.