SERANA Science for Life	Document ID:	TDS-MCL-072-500ML	Version:	002
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	Review Date:	10-JAN-2025	Signature:	
	Title:	**TECHNICAL DATASHEET**		

Williams Medium E

Filtration/ Treatment	with stable Glutamine, Sterile Filtered
Product Code	MCL-072-500ML
Shelf Life	18 months from DOM
Storage Temperature	+2 to +8°C
Shipping Temperature	ambient

QC Specifications

Physical and Chemical Analysis	**Method**	**Specifications**	**Units**
Appearance	Visual	Clear, red solution	n/a
pH at RT	Electronic pH Meter	6.8 - 7.8	n/a
Osmolality	Osmometer	280 - 340	mOsm/kg
Endotoxin	LAL Kinetic	≤ 1.0	EU/ml
Sterility			
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			
Cell growth promotion	Passage test	3 passages	n/a
Viability	Trypan Blue Exclusion	≥75%	n/a

Formulation

Amino Acids	**CAS number**	**Concentration (mg/L)**
L-Alanine	56-41-7	90.00
L-alanyl-L-glutamine	39537-23-0	434.00
L-Arginine, Hydrochloride	1119-34-2	60.50
L-Asparagine, Monohydrate	5794-13-8	20.00
L-Aspartic Acid	56-84-8	30.00
L-Cysteine, Hydrochloride, Monohydrate	7048-04-6	58.00
L-Cystine, Dihydrochloride	30925-07-6	26.09
L-Glutamic acid	56-86-0	50.00
L-Histidine, Hydrochloride, Monohydrate	5934-29-2	20.30
L-Isoleucine	73-32-5	50.00
L-Leucine	61-90-5	75.00
L-Lysine, Hydrochloride	657-27-2	87.50
L-Methionine	63-68-3	15.00
L-Phenylalanine	63-91-2	25.00
L-Proline	147-85-3	30.00
L-Serine	56-45-1	10.00
L-Threonine	72-19-5	40.00
L-Tryptophan	73-22-3	10.00
L-Tyrosine, Disodium, Dihydrate	122666-87-9	35.00
L-Valine	72-18-4	50.00
Vitamins		
Biotin	58-85-5	0.50
Calciferol	50-14-6	1.00
Choline Chloride	67-48-1	1.50
D-Calcium Pantothenate	6381-63-1	1.00
DL-a-Tocopherol PO_4 Na_2	60934-46-5	0.01
Folic Acid	59-30-3	1.00
L-Ascorbic Acid	50-81-7	2.00
Menadione Sodium Bisulfite trihydrate	6147-37-1	0.01

Myo-Inositol	87-89-8	2.00
Niacinamide	98-92-0	1.00
Pyridoxal, Hydrochloride	65-22-5	1.00
Riboflavin	83-88-5	0.10
Thiamine, Hydrochloride	67-03-8	1.00
Vitamin A Acetate	127-47-9	0.10
Vitamin B12	68-19-9	0.20
Other Components		
D-Glucose, Anhydrous	50-99-7	2000.00
Reduced Glutathione	70-18-8	0.05
Methyl Linoleate	112-63-0	0.03
Sodium Pyruvate	113-24-6	25.00
Phenol Red, Sodium Salt	34487-61-1	8.10
Inorganic Salts		
Calcium Chloride, Dihydrate	10035-04-8	264.90
Cupric Sulfate	7758-98-7	0.00006
Ferric Nitrate Nonahydrate	7782-61-8	0.0001
Magnesium Sulfate, Anhydrous	7487-88-9	97.70
Potassium Chloride	7447-40-7	400.00
Sodium Bicarbonate	144-55-8	2200.00
Sodium Chloride	7647-14-5	6800.00
Sodium Phosphate, Monobasic, Monohydrate	10049-21-5	140.00
Zinc Sulfate Heptahydrate	7446-20-0	0.0002

Product description

Willliams et al., (1971)[1] introduced a new method based on sequential plating technique for a more efficient isolation and culturing of newborn epithelial liver cells. They used a modified version of MEM medium called Williams' Medium D which was enriched in amino acids and contained the two-fold glucose content. Williams and Gunn (1974)[2] conducted further studies, finally resulting in the release of Williams' Medium E to be used for the effective long-term culture of adult liver cells. During last decades Williams' Medium E has been widely used for the culture of liver epithelial cells, as well as primary hepatocytes from different species (e.g., human HepaRG cells).

William's Medium E contains unique ingredients such as zinc, iron, manganese, non-essential amino acids, the reducing agent glutathione and the lipid methyl linoleate. William's E Medium can be supplemented with 5-10% fetal bovine serum. William's E Medium uses a sodium bicarbonate (2.2 g/l) buffer system and therefore requires a 5-10% CO_2 environment to maintain physiological pH.

References

1. Williams, G.M., and Gunn, J.M., Long-Term Cell Culture of Adult Rat Liver Epithelial Cells. Exp. Cell Research, 89, 139-142 (1974).
2. Williams, G.M. et al., Isolation and Long-Term Cell Culture of Epithelial-Like Cells From Rat Liver. Exp. Cell Research, 69, 106-112 (1971).

Product Use: This product is intended for laboratory use only.