

Medium 199 Formulation

Catalog no.	316-010 1X, Liquid M199	316-011 1X, Liquid M199	316-012 1X, Liquid M199	316-020 1X, Liquid M199
Inorganic Salts	mg/L	mg/L	mg/L	mg/L
CaCl ₂ (anhydrous)	200.00	140.00	140.00	200.00
Fe(NO ₃) ₃ ·9H ₂ O	0.72	0.72	0.72	0.72
KCl	400.00	400.00	400.00	400.00
KH ₂ PO ₄	----	60.00	60.00	----
MgSO ₄ (anhydrous)	97.70	97.70	97.70	97.70
NaCl	6800.00	8000.00	8000.00	6800.00
NaH ₂ PO ₄ ·H ₂ O	140.00	-----	-----	140.00
Na ₂ HPO ₄ (anhydrous)	----	47.50	47.50	----
NaHCO ₃	2200.00	-----	1600.00	2200.00
Amino Acids				
L-Alanine	25.00	25.00	25.00	25.00
L-Arginine·HCl	70.00	70.00	70.00	70.00
L-Aspartic acid	30.00	30.00	30.00	30.00
L-Cysteine·HCl·H ₂ O	0.11	0.11	0.11	0.11
L-Cystine·2HCl	26.00	26.00	26.00	26.00
L-Glutamic acid	75.00	75.00	75.00	75.00
L-Glutamine	100.00	100.00	100.00	100.00
Glycine	50.00	50.00	50.00	50.00
L-Histidine·HCl·H ₂ O	21.88	21.88	21.88	21.88
Hydroxy-L-proline	10.00	10.00	10.00	10.00
L-Isoleucine	20.00	20.00	20.00	20.00
L-Leucine	60.00	60.00	60.00	60.00
L-Lysine·HCl	70.00	70.00	70.00	70.00
L-Methionine	15.00	15.00	15.00	15.00
L-Phenylalanine	25.00	25.00	25.00	25.00
L-Proline	40.00	40.00	40.00	40.00
L-Serine	25.00	25.00	25.00	25.00
L-Threonine	30.00	30.00	30.00	30.00
L-Tryptophan	10.00	10.00	10.00	10.00
L-Tyrosine·2Na·2H ₂ O	57.87	57.87	57.87	57.87
L-Valine	25.00	25.00	25.00	25.00

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Medium 199 Formulation, contd.

Catalog no.	316-010 1X, Liquid M199	316-011 1X, Liquid M199	316-012 1X, Liquid M199	316-020 1X, Liquid M199
Vitamins	mg/L	mg/L	mg/L	mg/L
DL-alpha-Tocopherol·PO ₄ ·Na	0.01	0.01	0.01	0.01
Ascorbic acid	0.05	0.05	0.05	0.05
Biotin	0.01	0.01	0.01	0.01
Calciferol	0.10	0.10	0.10	0.10
D-Calcium pantothenate	0.01	0.01	0.01	0.01
Choline chloride	0.50	0.50	0.50	0.50
Folic acid	0.01	0.01	0.01	0.01
i-Inositol	0.05	0.05	0.05	0.05
Menadione·NaHSO ₃ ·3H ₂ O	0.019	0.019	0.019	0.019
Nicotinic acid	0.025	0.025	0.025	0.025
Nicotinamide	0.025	0.025	0.025	0.025
<i>Para</i> -Aminobenzoic acid	0.05	0.05	0.05	0.05
Pyridoxine·HCl	0.05	0.05	0.05	0.05
Riboflavin	0.01	0.01	0.01	0.01
Thiamine·HCl	0.01	0.01	0.01	0.01
Vitamin A acetate	0.14	0.14	0.14	0.14
Other				
Adenine sulfate	10.00	10.00	10.00	10.00
5-Adenylic acid·H ₂ O	0.20	0.20	0.20	0.20
ATP, 2Na·3H ₂ O	1.00	1.00	1.00	1.00
Cholesterol	0.20	0.20	0.20	0.20
2-Deoxy-D-ribose	0.50	0.50	0.50	0.50
D-Glucose	1000.00	1000.00	1000.00	1000.00
Glutathione (reduced)	0.05	0.05	0.05	0.05
Guanine·HCl	0.30	0.30	0.30	0.30
HEPES	----	----	----	5958.00
Hypoxanthine, Na	0.354	0.354	0.354	0.354
Phenol red, Na	10.00	10.00	10.00	10.00
D-Ribose	0.50	0.50	0.50	0.50
Sodium acetate	50.00	50.00	50.00	50.00
Thymine	0.30	0.30	0.30	0.30
Tween 80	20.00	20.00	20.00	20.00
Uracil	0.30	0.30	0.30	0.30
Xanthine, Na	0.34	0.34	0.34	0.34
Specifications				
pH (after buffer)	7.2 ± 0.2	7.2 ± 0.2	7.2 ± 0.2	7.2 ± 0.2
Osmolality (mOsm/kg)	290 ± 30	270-310	290 ± 30	290 ± 30

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Medium 199 Formulation

Catalog no.	216-010 Powder M199	216-011 Powder M199	216-025 Powder M199
Inorganic Salts	mg/L	mg/L	mg/L
CaCl ₂ (anhydrous)	200.00	140.00	200.00
Fe(NO ₃) ₃ ·9H ₂ O	0.72	0.72	0.72
KCl	400.00	400.00	400.00
KH ₂ PO ₄	----	60.00	----
MgSO ₄ (anhydrous)	97.70	97.70	97.70
NaCl	6800.00	8000.00	6800.00
NaH ₂ PO ₄ ·H ₂ O	140.00	----	140.00
Na ₂ HPO ₄ (anhydrous)	----	47.50	----
NaHCO ₃	----	----	----
Amino Acids			
L-Alanine	25.00	25.00	25.00
L-Arginine·HCl	70.00	70.00	70.00
L-Aspartic acid	30.00	30.00	30.00
L-Cysteine·HCl·H ₂ O	0.11	0.11	0.11
L-Cystine·2HCl	26.00	26.00	26.00
L-Glutamic acid	75.00	75.00	75.00
L-Glutamine	100.00	100.00	----
Glycine	50.00	50.00	50.00
L-Histidine·HCl·H ₂ O	21.88	21.88	21.88
Hydroxy-L-proline	10.00	10.00	10.00
L-Isoleucine	20.00	20.00	20.00
L-Leucine	60.00	60.00	60.00
L-Lysine·HCl	70.00	70.00	70.00
L-Methionine	15.00	15.00	15.00
L-Phenylalanine	25.00	25.00	25.00
L-Proline	40.00	40.00	40.00
L-Serine	25.00	25.00	25.00
L-Threonine	30.00	30.00	30.00
L-Tryptophan	10.00	10.00	10.00
L-Tyrosine·2Na·2H ₂ O	57.87	57.87	57.87
L-Valine	25.00	25.00	25.00

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Catalog no.	216-010 Powder M199	216-011 Powder M199	216-025 Powder M199
Vitamins	mg/L	mg/L	mg/L
DL-alpha-Tocopherol·PO ₄ ·Na	0.01	0.01	0.01
Ascorbic acid	0.05	0.05	0.05
Biotin	0.01	0.01	0.01
Calciferol	0.10	0.10	0.10
D-Calcium pantothenate	0.01	0.01	0.01
Choline chloride	0.50	0.50	0.50
Folic acid	0.01	0.01	0.01
i-Inositol	0.05	0.05	0.05
Menadione·NaHSO ₃ ·3H ₂ O	0.019	0.019	0.019
Nicotinic acid	0.025	0.025	0.025
Nicotinamide	0.025	0.025	0.025
<i>Para</i> -Aminobenzoic acid	0.05	0.05	0.05
Pyridoxine·HCl	0.05	0.05	0.05
Riboflavin	0.01	0.01	0.01
Thiamine·HCl	0.01	0.01	0.01
Vitamin A acetate	0.14	0.14	0.14
Other			
Adenine sulfate	10.00	10.00	10.00
5-Adenylic acid·H ₂ O	0.20	0.20	0.20
ATP, 2Na·3H ₂ O	1.00	1.00	1.00
Cholesterol	0.20	0.20	0.20
2-Deoxy-D-ribose	0.50	0.50	0.50
D-Glucose	1000.00	1000.00	1000.00
Glutathione (reduced)	0.05	0.05	0.05
Guanine·HCl	0.30	0.30	0.30
Hypoxanthine, Na	0.354	0.354	0.354
Phenol red, Na	10.00	10.00	----
D-Ribose	0.50	0.50	0.50
Sodium acetate	50.00	50.00	50.00
Thymine	0.30	0.30	0.30
Tween 80	20.00	20.00	20.00
Uracil	0.30	0.30	0.30
Xanthine, Na	0.34	0.34	0.34
Specifications			
pH (after buffer)	7.5 ± 0.5	6.9 ± 0.2	7.5 ± 0.5
Osmolality (mOsm/kg)	260-320	275-315	260-320
Grams of powder required to prepare 1L (1X Solution)	9.50	10.63	9.39

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