SolMate™

Dehydrated Culture Media and Raw Materials for Bacterial Culture

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01 Dehydrated Culture Media for Bacterial Culture

LB BROTH (MILLER)

Usage: Suspend 25 g in 1 L of purified water. Heat with frequent agitation and boil to completely dissolve the powder. Autoclave at 121 ˚C for 20 minutes. The medium is used for the cultivation of *Escherichia coli* in molecular biology experiments (Molecular Cloning: A Laboratory Manual 4th Edition).

Principle: Tryptone and Yeast extract provide nitrogen sources, vitamins and growth factors. Sodium chloride maintains balanced osmotic pressure.

Ingredients:

Formula (1 L)	Amount (g/L)
Tryptone	10
Yeast extract	5
Sodium chloride	10
pH (25 ˚C)	7.0 ± 0.2

Storage: Store at room temperature in a dark and dry place, and tighten the bottle cap immediately after use.

Quality Control Strain	Indicators	Assessment Standard
Escherichia coli ATCC 25922	Productivity	Turbidity ≥ 2
Escherichia coli DH5α	Productivity	Turbidity ≥ 2
Escherichia coli HB101	Productivity	Turbidity ≥ 2

QC Condition: 36 ± 1 ˚C, 12–18 h

Ordering Information

Cat. No.	Product	Grade	Size
SM-LBB-500	LB BROTH (MILLER)	Bacteriological	500 g

LB BROTH (LENNOX)

Usage: Suspend 20 g in 1 L of purified water. Heat with frequent agitation and boil to completely dissolve the powder. Autoclave at 121 ˚C for 20 minutes. The medium is used for the cultivation of *Escherichia coli* in molecular biology experiments (Molecular Cloning: A Laboratory Manual 4th Edition).

Principle: Tryptone and Yeast extract provide nitrogen sources, vitamins and growth factors. Sodium chloride maintains balanced osmotic pressure.

Ingredients:

Formula (1 L)	Amount (g/L)
Tryptone	10
Yeast extract	5
Sodium chloride	10
pH (25 ˚C)	7.0 ± 0.2

Storage: Store at room temperature in a dark and dry place, and tighten the bottle cap immediately after use.

Quality Control Strain	Indicators	Assessment Standard
Escherichia coli ATCC 25922	Productivity	Turbidity ≥ 2
Escherichia coli DH5α	Productivity	Turbidity ≥ 2
Escherichia coli HB101	Productivity	Turbidity ≥ 2

QC Condition: 36 ± 1 ˚C, 12–18 h

Ordering Information

Cat. No.	Product	Grade	Size
SM-LBL-500	LB BROTH (LENNOX)	Bacteriological	500 g

LB AGAR (MILLER)

Usage: Suspend 40 g in 1 L of purified water. Heat with frequent agitation and boil to completely dissolve the powder. Autoclave at 121 ˚C for 20 minutes. The medium is used for the cultivation of *Escherichia coli* in molecular biology experiments (Molecular Cloning: A Laboratory Manual 4th Edition).

Principle: Tryptone and Yeast extract provide nitrogen sources, vitamins and growth factors. Sodium chloride maintains balanced osmotic pressure. Agar is the coagulant of the medium.

Ingredients:

Formula (1 L)	Amount (g/L)
Tryptone	10
Yeast extract	5
Sodium chloride	10
Agar	15
pH (25 ˚C)	7.0 ± 0.2

Storage: Store at room temperature in a dark and dry place, and tighten the bottle cap immediately after use.

Quality Control Strain	Indicators	Assessment Standard
Escherichia coli ATCC 25922	Productivity	PR ≥ 0.7
Escherichia coli DH5α	Productivity	PR ≥ 0.7
Escherichia coli HB101	Productivity	PR ≥ 0.7

QC Condition: 36 ± 1 ˚C, 12–18 h

Ordering Information

Cat. No.	Product	Grade	Size
SM-LAM-500	LB AGAR (MILLER)	Bacteriological	500 g

LB AGAR (LENNOX)

Usage: Suspend 35 g in 1 L of purified water. Heat with frequent agitation and boil to completely dissolve the powder. Autoclave at 121 ˚C for 20 minutes. The medium is used for the cultivation of *Escherichia coli* in molecular biology experiments (Molecular Cloning: A Laboratory Manual 4th Edition).

Principle: Tryptone and Yeast extract provide nitrogen sources, vitamins and growth factors. Sodium chloride maintains balanced osmotic pressure. Agar is the coagulant of the medium.

Ingredients:

Formula (1 L)	Amount (g/L)
Tryptone	10
Yeast extract	5
Sodium chloride	5
Agar	15
pH (25 ˚C)	7.0 ± 0.2

Storage: Store at room temperature in a dark and dry place, and tighten the bottle cap immediately after use.

Quality Control Strain	Indicators	Assessment Standard
Escherichia coli ATCC 25922	Productivity	PR ≥ 0.7
Escherichia coli TOP10	Productivity	PR ≥ 0.7

QC Condition: 36 ± 1 ˚C, 12–18 h

Ordering Information

Cat. No.	Product	Grade	Size
SM-LAL-500	LB AGAR (LENNOX)	Bacteriological	500 g

Performance Data

The LB AGAR (MILLER) plates prepared using SolMate™ and other brands were used for culturing *Escherichia coli* ATCC 25922, DH5α and HB101. Both the empty plates and the bacterial growth plates showed similar appearances across different brands. Actual test results are shown in the figure.

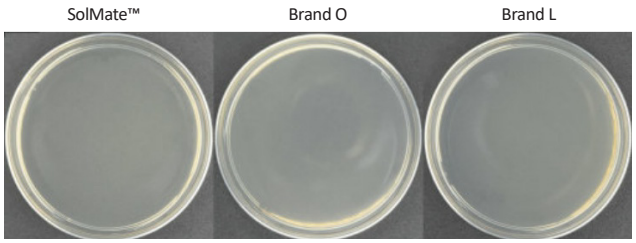

Figure 1. Comparison of LB Agar Plate

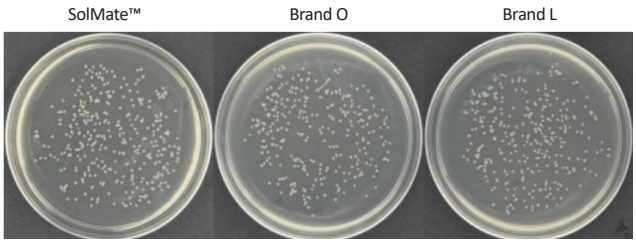

Figure 2. Comparison of *Escherichia coli* ATCC 25922 Growth

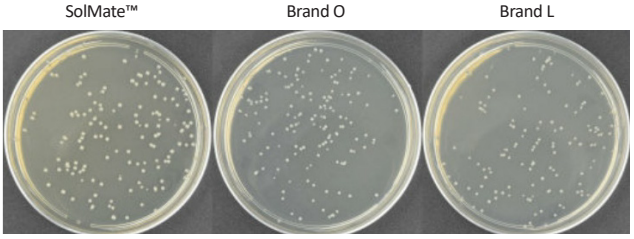

Figure 3. Comparison of *Escherichia coli* DH5α Growth

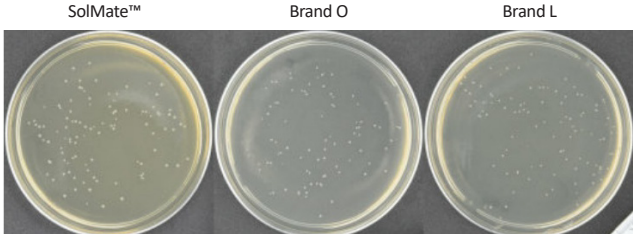

Figure 4. Comparison of *Escherichia coli* HB101 Growth

The LB Broth (Miller) prepared with SolMate™ and other brands were used for culturing Escherichia coli ATCC 25922 and DH5α, compare the growth time and the turbidity after overnight cultivation. Both the empty tubes and the bacterial growth tubes showed similar appearances across different brands. Actual test results are shown in the figure.

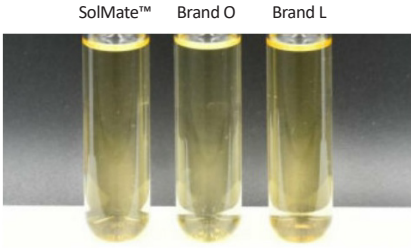

Figure 5. Comparison of LB Broth Tube

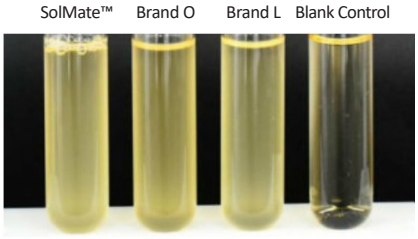

Figure 6. Comparison of *Escherichia coli* DH5α

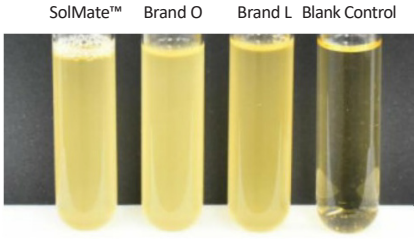

Figure 7. Comparison of *Escherichia coli* ATCC 25922

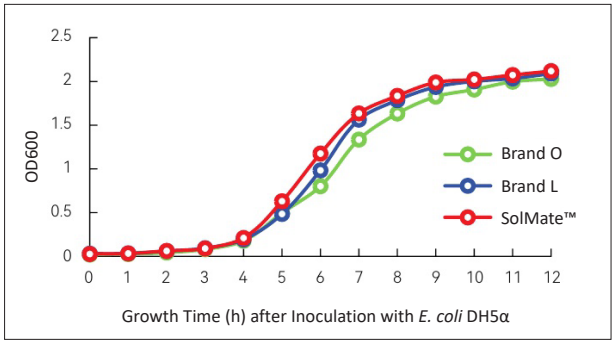

Figure 8. *Escherichia coli* DH5α 12-h Growth Curve in LB Broth

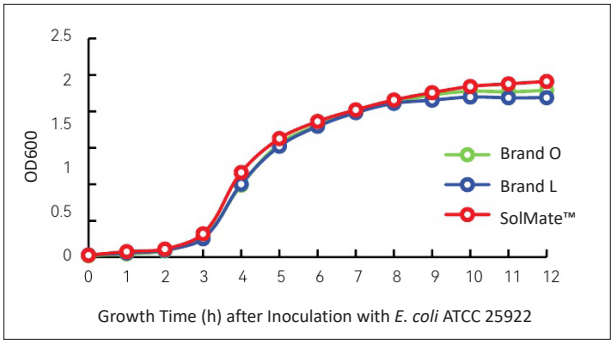

Figure 9. *Escherichia coli* ATCC 25922 12-h Growth Curve in LB Broth

LB PRO BROTH

Usage: Suspend 25 g in 1 L of purified water. Heat with frequent agitation and boil to completely dissolve the powder. Autoclave at 121 ˚C for 20 minutes. The medium is used for the cultivation of *Escherichia coli* in molecular biology experiments (Molecular Cloning: A Laboratory Manual 4th Edition). It is particularly suitable for high-density fermentation, toxic protein expression, and other experiments with high stability requirements.

Principle: Tryptone and Yeast extract provide nitrogen sources, vitamins and growth factors. Sodium chloride maintains balanced osmotic pressure.

Ingredients:

Formula (1 L)	Amount (g/L)
Tryptone	10
Yeast extract	5
Sodium chloride	10
pH (25 ˚C)	7.0 ± 0.2

Storage: Store at room temperature in a dark and dry place, and tighten the bottle cap immediately after use.

Quality Control Strain	Indicators	Assessment Standard
Escherichia coli ATCC 25922	Productivity	Turbidity ≥ 2
Escherichia coli DH5α	Productivity	Turbidity ≥ 2
Escherichia coli HB101	Productivity	Turbidity ≥ 2

QC Condition: 36 ± 1 ˚C, 12–18 h

Ordering Information

Cat. No.	Product	Grade	Size
SM-LPB-500	LB PRO BROTH	Bacteriological	500 g

Performance Data: The LB PRO BROTH prepared with SolMate™ significantly accelerates the enrichment of *E. coli* containing the pUC19 plasmid. With an inoculation ratio of 1:100, the OD600 can reach 1.5 within 4 hours. Representative test results are shown in the figure.

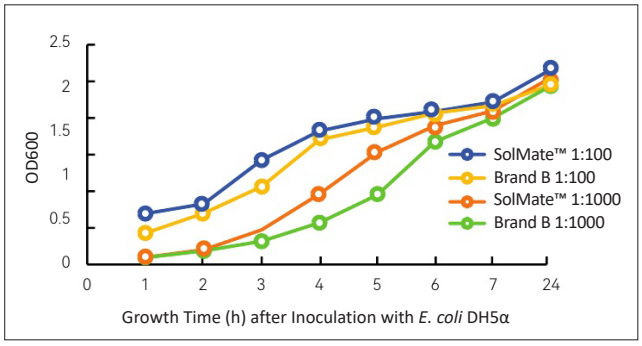

Figure 10. Growth curve of *E. coli* DH5α (containing pUC19 plasmid) in LB PRO BROTH

Time	SolMate™ 1:100	SolMate™ 1:1000	Brand B 1:100	Brand B 1:1000
1 h	0.574	0.074	0.352	0.071
2 h	0.685	0.160	0.578	0.147
3 h	1.185	0.387	0.882	0.257
4 h	1.518	0.797	1.418	0.469
5 h	1.658	1.276	1.562	0.786
6 h	1.742	1.579	1.723	1.396
7 h	1.849	1.748	1.807	1.667
24 h	2.219	2.127	2.045	2.033

SUPER BROTH (SB)

Usage: Suspend 57 g in 1 L of purified water. Heat with frequent agitation and boil to completely dissolve the powder. Autoclave at 121 ˚C for 15 minutes. This medium is mainly used in high-yield plasmid and protein production.

Principle: Tryptone and Yeast extract provide nitrogen sources, vitamins and growth factors. Sodium chloride maintains balanced osmotic pressure.

Ingredients:

Formula (1 L)	Amount (g/L)
Tryptone	10
Yeast extract	5
Sodium chloride	10
pH (25 ˚C)	7.0 ± 0.2

Storage: Store at room temperature in a dark and dry place, and tighten the bottle cap immediately after use.

Quality Control Strain	Indicators	Assessment Standard
Escherichia coli ATCC 25922	Productivity	Turbidity ≥ 2
Escherichia coli DH5α	Productivity	Turbidity ≥ 2
Escherichia coli HB101	Productivity	Turbidity ≥ 2

QC Condition: 36 ± 1 ˚C, 12–18 h

Ordering Information

Cat. No.	Product	Grade	Size
SM-SBB-500	SUPER BROTH (SB)	Bacteriological	500 g

TERRIFIC BROTH (TB)

Usage: Suspend 50.9 g in 1 L of purified water. Heat with frequent agitation and boil to completely dissolve the powder and add 4 ml of glycerol. Autoclave at 121 ˚C for 20 minutes. This medium is used for protein expression in *E. coli* (Molecular Cloning: A Laboratory Manual 4th Edition).

Principle: Tryptone and Yeast extract provide nitrogen sources, vitamins and growth factors. Phosphate maintains balanced osmotic pressure.

Ingredients:

Formula (1 L)	Amount (g/L)
Tryptone	12
Yeast extract	24
KH_2PO_4	2.31
K_2HPO_4	12.54
pH (25 ˚C)	7.2 ± 0.2

Storage: Store at room temperature in a dark and dry place, and tighten the bottle cap immediately after use.

Quality Control Strain	Indicators	Assessment Standard
Escherichia coli ATCC 25922	Productivity	Turbidity ≥ 2
Escherichia coli DH5α	Productivity	Turbidity ≥ 2
Escherichia coli HB101	Productivity	Turbidity ≥ 2

QC Condition: 36 ± 1 ˚C, 12–18 h

Ordering Information

Cat. No.	Product	Grade	Size
SM-TBB-500	TERRIFIC BROTH (TB)	Bacteriological	500 g

SB Performance Data: The Super Broth prepared with SolMate™ and other brands are supplemented with the same final concentration of ampicillin. Equal amounts of *E. coli* DH5α are inoculated for overnight cultivation.

Brand	OD Value	Sample No.	A_{260}/A_{280}	A_{260}/A_{230}	Concentration (ng/μl)	Elution Volume (μl)	Yield (μg)	Average Yield (μg)	Overall Average Yield (μg)
SolMate™	2.086	1	1.86	2.04	139.7	92	12.85	12.83	13.00
			1.86	2.03	139.3	92	12.82		
		2	1.86	1.93	146.8	87	12.77	12.74	
			1.86	1.95	146.0	87	12.70		
		3	1.86	2.00	149.7	90	13.47	13.42	
			1.86	1.98	148.6	90	13.37		
Brand S	2.010	4	1.84	2.04	113.1	95	10.74	10.74	10.51
			1.84	1.97	113.0	95	10.74		
		5	1.85	2.08	114.1	94	10.73	10.86	
			1.85	2.02	117.0	94	11.00		
		6	1.85	2.07	107.2	93	9.97	9.94	
			1.87	2.10	106.6	93	9.91		
Brand O	1.970	7	1.85	2.03	115.2	94	10.83	10.71	10.57
			1.84	2.12	112.7	94	10.59		
		8	1.86	2.06	118.0	93	10.97	10.91	
			1.87	2.10	116.7	93	10.85		
		9	1.87	2.10	110.2	92	10.14	10.10	
			1.86	2.08	109.3	92	10.06		

TB Performance Data: The Terrific Broth prepared with SolMate™ and other brands are supplemented with the same final concentration of ampicillin. Equal amounts of *E. coli* DH5α are inoculated for overnight cultivation.

Brand	OD Value	Sample No.	A_{260}/A_{280}	A_{260}/A_{230}	Concentration (ng/μl)	Elution Volume (μl)	Yield (μg)	Average Yield (μg)	Overall Average Yield (μg)
SolMate™	2.062	1	1.86	2.02	164.7	96	15.81	15.66	15.95
			1.87	2.02	161.6	96	15.51		
		2	1.87	2.10	175.5	95	16.67	16.61	
			1.88	2.11	174.2	95	16.55		
		3	1.84	1.88	164.7	94	15.48	15.58	
			1.84	1.86	166.7	94	15.67		
Brand S	1.955	4	1.84	1.90	78.1	89	6.95	6.89	6.84
			1.84	1.91	76.8	89	6.84		
		5	1.82	1.60	77.5	90	6.98	7.07	
			1.81	1.52	79.5	90	7.16		
		6	1.83	1.90	73.0	90	6.57	6.57	
			1.84	1.92	72.9	90	6.56		
Brand O	1.855	7	1.86	2.12	121.0	94	11.37	11.42	10.70
			1.85	2.07	122.0	94	11.47		
		8	1.85	2.11	115.5	93	10.74	10.93	
			1.87	2.05	119.5	93	11.11		
		9	1.87	2.09	104.2	92	9.59	9.75	
			1.83	2.11	107.8	92	9.92		

2×YT BROTH

Usage: Suspend 31 g in 1 L of purified water. Heat with frequent agitation and boil to completely dissolve the powder. Autoclave at 121 ˚C for 20 minutes. The medium is used for high-density cultivation of *E. coli* to enhance plasmid or protein yield.

Principle: Tryptone and Yeast extract provide carbon sources, nitrogen sources, vitamins and minerals. Sodium chloride maintains balanced osmotic pressure.

Ingredients:

Formula (1 L)	Amount (g/L)
Tryptone	16
Yeast extract	10
Sodium chloride	5
pH (25 ˚C)	7.2 ± 0.2

Storage: Store at room temperature in a dark and dry place, and tighten the bottle cap immediately after use.

Quality Control Strain	Indicators	Assessment Standard
Escherichia coli ATCC 25922	Productivity	Turbidity ≥ 2
Escherichia coli TOP10	Productivity	Turbidity ≥ 2

QC Condition: 36 ± 1 ˚C, 12–18 h

Ordering Information

Cat. No.	Product	Grade	Size
SM-YTB-500	2×YT BROTH	Bacteriological	500 g

2×YT AGAR

Usage: Suspend 46 g in 1 L of purified water. Heat with frequent agitation and boil to completely dissolve the powder. Autoclave at 121 ˚C for 20 minutes. The medium is used for high-density cultivation of *E. coli* to enhance plasmid or protein yield.

Principle: Tryptone and Yeast extract provide carbon sources, nitrogen sources, vitamins and minerals. Sodium chloride maintains balanced osmotic pressure. Agar is the coagulant of the medium.

Ingredients:

Formula (1 L)	Amount (g/L)
Tryptone	16
Yeast extract	10
Sodium chloride	5
Agar	15
pH (25 ˚C)	7.0 ± 0.2

Storage: Store at room temperature in a dark and dry place, and tighten the bottle cap immediately after use.

Quality Control Strain	Indicators	Assessment Standard
Escherichia coli ATCC 25922	Productivity	PR ≥ 0.7
Escherichia coli TOP10	Productivity	PR ≥ 0.7

QC Condition: 36 ± 1 ˚C, 12–18 h

Ordering Information

Cat. No.	Product	Grade	Size
SM-YTA-500	2×YT AGAR	Bacteriological	500 g

Performance Data: The 2×YT BROTH prepared with SolMate™ and other brands are supplemented with the same final concentration of ampicillin. Equal amounts of *E. coli* TOP10 are inoculated for overnight cultivation.

Brand	OD Value	Sample No.	A_{260}/A_{280}	A_{260}/A_{230}	Concentration (ng/μl)	Elution Volume (μl)	Yield (μg)	Average Yield (μg)	Overall Average Yield (μg)
SolMate™	1.778	1	1.92	1.92	124.4	94	11.69	11.60	11.50
			1.92	1.92	122.5	94	11.52		
		2	1.91	1.91	120.1	94	11.29	11.28	
			1.92	1.92	120.0	94	11.28		
		3	1.91	1.91	121.7	95	11.56	11.62	
			1.91	1.91	122.9	95	11.68		
Brand O	1.850	4	1.90	2.52	123.2	95	11.70	11.76	11.64
			1.90	2.52	124.4	95	11.82		
		5	1.91	2.64	125.1	94	11.76	11.79	
			1.90	2.52	125.7	94	11.82		
		6	1.89	2.35	120.6	95	11.48	11.36	
			1.91	2.55	118.5	95	11.26		

02 Raw Materials for Bacterial Culture

YEAST EXTRACT

YEAST EXTRACT is a nutrient-rich substance obtained from yeast cells through processes such as cell disruption, extraction, separation, and drying. It is rich in amino acids, peptides, nucleotides, vitamins, minerals, and other biologically active components.

Specifications

YEAST EXTRACT	
Total Nitrogen	≥ 9.0%
Amino Nitrogen	≥ 2.5%
Loss on drying	≤ 6.0%
Moisture	≤ 6.0%
pH (2% solution)	6.8 – 7.2
Form	Powder
Color	Yellow or light yellow

Ordering Information

Cat. No.	Product	Grade	Size
SM-YEA-500	YEAST EXTRACT	Bacteriological	500 g

TRYPTONE

TRYPTONE is a key nutrient in dehydrated culture media. Produced from animal tissues through enzymatic digestion, it offers rich sources of nitrogen, amino acids, vitamins, and growth factors—ideal for promoting microbial growth.

Specifications

TRYPTONE	
Total Nitrogen	≥ 12.0%
Amino Nitrogen	≥ 4.0%
Ash	≤ 15.0%
Moisture	≤ 5.0%
pH	6.5 – 7.5
Form	Powder
Color	Pale yellow

Ordering Information

Cat. No.	Product	Grade	Size
SM-TRY-500	TRYPTONE	Bacteriological	500 g

AGAR

AGAR powder is produced from wild agar using scientific, rigorous, and mature processing techniques, supported by advanced equipment and testing instruments to ensure high product quality. It features low gelation temperature, high transparency, no precipitation, easy handling, and stable performance. This product is suitable for use in microbial culture media, immobilized enzyme carriers, microbial encapsulation materials, and various biochemical substance carriers. Additionally, it serves as a thickening agent, gelling agent, suspending agent, emulsifier, stabilizer, and preservative.

Specifications

AGAR	
Gel strength	≥ 800 g/cm^2
Ash	≤ 4.0%
Moisture	≤ 13.0%
pH	6.0 – 7.5
Form	Powder
Color	Milky white

Ordering Information

Cat. No.	Product	Grade	Size
SM-AGR-500	AGAR	Bacteriological	500 g

SODIUM CHLORIDE

SODIUM CHLORIDE is a high-purity inorganic salt widely used as a fundamental component in dehydrated culture media and various biochemical and molecular biology applications. Sodium chloride plays a critical role in maintaining osmotic balance in culture media, thereby supporting stable microbial growth and physiological activity. It is also extensively used in buffer preparation, reagent formulation, and general laboratory applications.

Specifications

SODIUM CHLORIDE	
Purity	≥ 99.0%
Molecular formula	NaCl
Molecular weight	58.44 g/mol
Melting point	801 ˚C
Heavy metals	Max. 5 ppm
Form	Crystalline powder
Color	White

Ordering Information

Cat. No.	Product	Grade	Size
SM-SOD-001	SODIUM CHLORIDE	Ultrapure	1 kg
SM-SOD-025	SODIUM CHLORIDE	Ultrapure	2.5 kg

Ordering Information

Cat. No.	Product	Grade	CAS No.	Size
SM-LBB-500	LB BROTH (MILLER)	Bacteriological	-	500 g
SM-LBL-500	LB BROTH (LENNOX)	Bacteriological	-	500 g
SM-LAM-500	LB AGAR (MILLER)	Bacteriological	-	500 g
SM-LAL-500	LB AGAR (LENNOX)	Bacteriological	-	500 g
SM-LPB-500	LB PRO BROTH	Bacteriological	-	500 g
SM-SBB-500	SUPER BROTH (SB)	Bacteriological	-	500 g
SM-TBB-500	TERRIFIC BROTH (TB)	Bacteriological	-	500 g
SM-YTB-500	2×YT BROTH	Bacteriological	-	500 g
SM-YTA-500	2×YT AGAR	Bacteriological	-	500 g
SM-YEA-500	YEAST EXTRACT	Bacteriological	8013-01-2	500 g
SM-TRY-500	TRYPTONE	Bacteriological	91079-40-2	500 g
SM-AGR-500	AGAR	Bacteriological	9002-18-0	500 g
SM-SOD-001	SODIUM CHLORIDE	Ultrapure	7647-14-5	1 kg
SM-SOD-025	SODIUM CHLORIDE	Ultrapure	7647-14-5	2.5 kg

Bridging the World

GeneAll

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