



OptiMATE Gradient Maker

Automation meets precision to transform purification with streamlined workflows, consistency, and ease.

ACCELERATING
answers

 **BECKMAN
COULTER**
Life Sciences

Automated Precision for Seamless Gradients

The OptiMATE Gradient Maker

The first and only instrument of its kind, specifically designed to streamline and accelerate density gradient ultracentrifugation (DGUC) purifications. The OptiMATE Gradient Maker automates nearly every aspect of gradient preparation, delivering enhanced consistency, reduced run times, and a seamless plug-and-play experience.



Reduce Error & Improve Consistency

Automated gradient dispensing and tube sealing minimizes manual handling, reducing variability and increasing reproducibility across operators and runs.



Dramatic Run Time Reduction (75%+)

By using pre-formed gradients, the OptiMATE system cuts separation times by over 75%, accelerating your workflows and enabling faster results.



Train New Operators in Hours, Not Weeks

The user-friendly interface allows quick method setup and easy operator training, ensuring fast adoption and minimal downtime.



Standardize & Simplify Protocols

Easily create and publish methods, streamlining lab management with clear, reproducible procedures while standardizing protocols for consistent operation.



Small Footprint

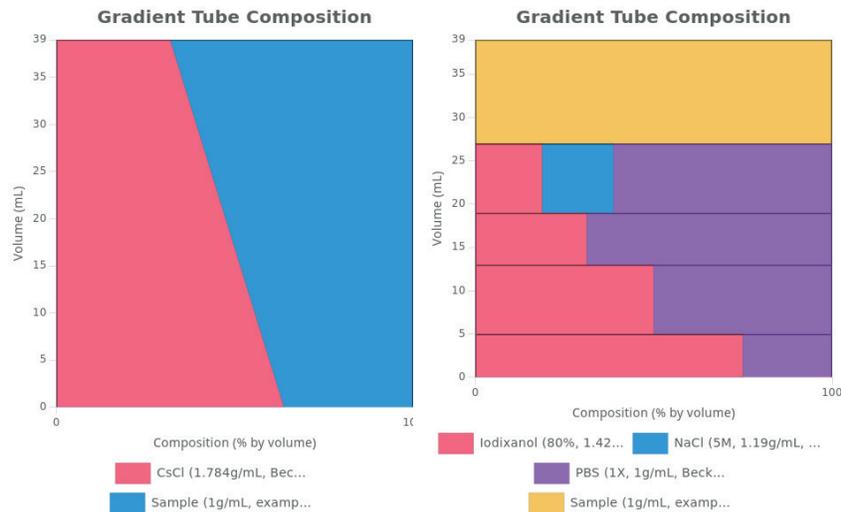
Compact design allows the OptiMATE system to fit conveniently into a biosafety cabinet or on the bench near your Optima X Series Ultracentrifuge, optimizing lab space.



OptiMATE Gradient Maker Workflow

1 Create method

Easily specify tubes, reagents, and gradient settings through an intuitive UI



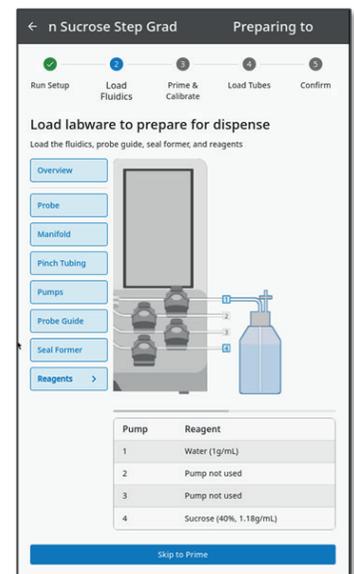
2 Insert tubes and connect accessories

Step-by-step instructions for seamless setup

3 Run method

Built-in checks to facilitate operation even by inexperienced users

4 Centrifuge-ready tubes



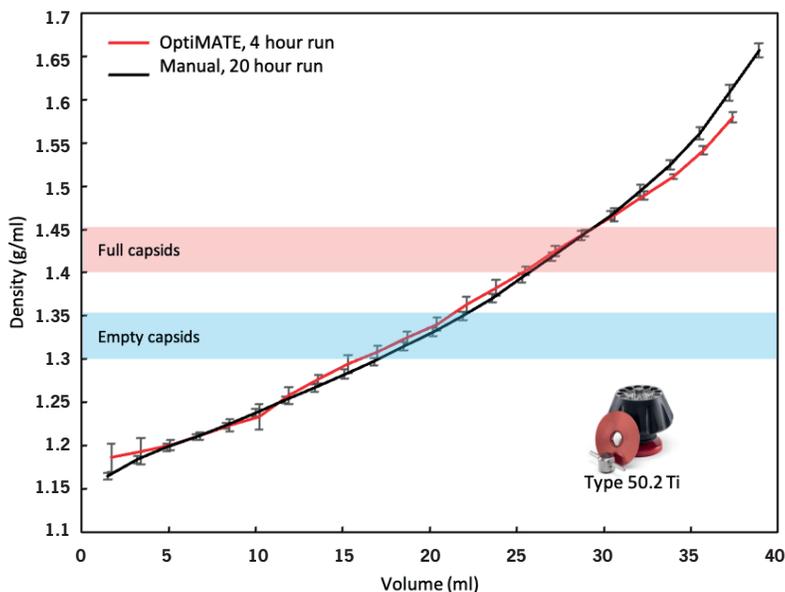
Accuracy in Every Gradient

The OptiMATE Gradient Maker supports a broad range of applications across basic R&D, process development, and manufacturing. When used with our flagship Optima X Series Ultracentrifuges, OptiMATE Density Gradient Reagents, and versatile rotor and tube options, it creates a seamless workflow that optimizes your purification process.

- Adeno-associated virus (AAV)
- Adenovirus (AdV)
- Virus-like particles (VLPs)
- Bacteriophage
- Extracellular vesicles (EVs)
- Proteins/protein complexes
- Ribosomes/polysomes
- Nucleic acids/plasmids
- Lipid nanoparticles (LNPs)
- Lipoproteins
- Synthetic nanoparticles (NPs)
- Cells
- Organelles

75%+ centrifuge run time savings

Isopycnic (i.e., linear) gradients typically require long centrifuge run times because the gradient takes time to form under centrifugal force. Using a pre-formed linear gradient using the OptiMATE Gradient Maker eliminates the need to wait for gradient formation—you're only waiting for particle migration.



Manual
20 hour run



OptiMATE
5 hour run



Empty AAV
Full AVV

Compatibility

Rotors

- SW 32 Ti
- Type 45 Ti
- VTi 50.1
- Type 50.2
- VTi 65.1
- NVT 65
- Type 70 Ti
- Type 70.1 Ti
- Type 90 Ti

Tubes

- Approximate Volume: 13.5, 39, and 94 mL tubes
- Format: Open-Top, Quick-Seal, OptiSeal
- Material: Polypropylene and Ultra-Clear

Density Gradient Materials

- Sucrose
- Cesium Chloride
- Iodixanol



System Information

System Specifications

Item	Description	
Dimensions (WxDxH)		47.2 x 29.8 x 46.0 cm (18.6 x 11.75 x 18.1 in)
Weight		15.42 kg (34 lbs)
Performance	Volume Accuracy	± 4%
	Section Homogeneity ¹	≤ 1% variation when using OptiMATE Cesium Chloride
		≤ 6% variation when using OptiMATE Iodixanol
Throughput	Linear gradient: 6 tubes in 30 min ²	
	Step gradient: 6 tubes in 35 min ³	
Electrical Requirements	Power Supply Input	100 to 240 VAC, 2 A, 50/60 Hz
	Power Supply Output	24 VDC, 3.75 A
	Power Supply Efficiency	Class VI
	Installation (overvoltage) category	Category II
Environmental Requirements	Ambient Temperature Range ⁴	10 to 35° C
	Humidity Range ⁴	20 to 80% up to 31° C, linearly decreasing to 67% at 35° C
	Ventilation Clearances	Sides: 7.6 cm (3 in.)
		Rear: 2.5 cm (1 in.)
	Sound Pressure Level ⁵	≤ 58 dBA
	Pollution Degree	2
Altitude	up to 2000 meters (6562 ft)	

References

1. For section volume of up to 20 mL, when mixing OptiMATE Reagents with DI Water in ambient temperature of 15 to 30° C and < 80% relative humidity. Highly viscous solutions may have greater variation within a section compared to the variation expected with OptiMATE Iodixanol (D01358).
2. When dispensing a 39 mL linear gradient consisting of OptiMATE Cesium Chloride (D01357) mixed with cell culture media into six Quick-Seal tubes. Tube sealing is included in the total run time. Actual run time may vary based on the reagents and sample used.
3. When dispensing a 39 mL step gradient consisting of four sections of OptiMATE Iodixanol (D01358) mixed with DI water and a top section of cell culture media into six Quick-Seal tubes. Tube sealing is included in the total run time. Actual run time may vary based on the reagents and sample used.
4. OptiMATE Reagents satisfy dispense volume accuracy and homogeneity in ambient conditions of 15 to 30°C, <80% relative humidity. Other reagents have been tested and shown to satisfy dispense volume accuracy at room conditions (typically 18 to 23° C and 50% relative humidity).
5. Average Sound Pressure Level at a distance of 1 meter in front of the instrument and a height of 1.5 meters above the ground.

System Information

Ordering Information

Part Number	Item Description
D12917	OptiMATE Gradient Maker

D12917 package comes with Upper Fluidics, Lower Fluidics General (2), Lower Fluidics Conical/BEC Gradient (2), Seal Former, Probe Guide, Calibration Tube, Dispense Probe, 25 mm Tube Rack, 250 mL Conical Bottle, 500 mL Square Bottle (3), Prime Tube, and Flush Kit.

Replacement Parts

Part Number	Item Description	Quantity
D01357	OptiMATE Cesium Chloride	1
D01358	OptiMATE Iodixanol	1
D12216	OptiMATE Upper Fluidics	2
D12217	OptiMATE Seal Former ¹	4
D12218	OptiMATE Probe Guide	4
D12219	OptiMATE Lower Fluidics, General ²	6
D12220	OptiMATE Lower Fluidics, Conical/BEC Gradient ³	6
D12221	OptiMATE Calibration Tube	2
D12222	OptiMATE Dispense Probe	25
D25256	Tube Rack, 16 mm	2
D25257	Tube Rack, 25 mm	2
D25258	Tube Rack, 38 mm	2
D24152	OptiMATE Fluidics Kit	1
D12215	OptiMATE Flush Kit	4
Corning 352057*	Prime Tube	N/A
Corning 430776*	250 mL Conical Bottle	N/A
Nalgene 342020-0500*	500 mL Square Bottle	N/A

References

1. Required for operation even if not using Quick-Seal tubes.
 2. For use with 500 mL Square Bottles (Nalgene).
 3. For use with OptiMATE Reagents and 250 mL Conical Bottles (Corning).
- * Not provided by Beckman Coulter except at initial instrument purchase.

OptiMATE Gradient Maker Contact



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