

POP-7 SEPARATION POLYMER (28ML)

INSTRUCTIONS FOR USE

1. PRODUCT INFORMATION

Catalog Number	EV-SGR-004
Product Name	POP-7 Separation Polymer (28ml)
Category	CE Separation Polymer
Pack Size	28ml/bottle
Regulatory Status	For Research Use Only (RUO)
OEM Reference	Contact techsupport@enzovera.com
Version	1.0
Issue Date	2026-05-07

2. INTENDED USE

POP-7 Separation Polymer is intended for use in capillary electrophoresis-based Sanger sequencing applications on Applied Biosystems 3130, 3130xl, 3730, and 3730xl Genetic Analyzers. This performance-optimized polymer provides high-resolution separation of fluorescently labeled DNA fragments, enabling sequencing read lengths exceeding 1,000 bases with optimal base spacing and peak resolution. The polymer is supplied ready-to-use and is compatible with BigDye Terminator chemistry and standard Sanger sequencing protocols. For Research Use Only. Not for use in diagnostic procedures.

3. KIT COMPONENTS

Component	Quantity / Volume	Storage
POP-7 Separation Polymer	28 mL	2-8°C, protected from light
Polymer Bottle with Septum Cap	1 bottle	Room temperature
Syringe Adapter	1 unit	Room temperature
Desiccant Pack	1 pack	Room temperature
Product Insert with Performance Specifications	1 document	Room temperature

4. MATERIALS REQUIRED BUT NOT PROVIDED

- ABI 3730xl or compatible capillary electrophoresis instrument
- 50 cm capillary array (appropriate for fragment analysis or sequencing applications)
- Capillary array conditioning buffer (10X or appropriate dilution)
- Anode buffer container
- Cathode buffer container
- Polymer syringe and polymer block assembly
- Waste container for polymer disposal
- Capillary array cleaning solution (sodium hydroxide or manufacturer-recommended solution)

5. STORAGE AND STABILITY

Storage Temperature	-20°C, protect from light
Appearance	Viscous clear polymer solution
Shelf Life	12 months from manufacture date
Shipping Conditions	On dry ice
Freeze-Thaw Cycles	Maximum 3 cycles recommended
Working Solution	Stable on ice for up to 8 hours

6. PRECAUTIONS AND WARNINGS

- For Research Use Only. Not for use in diagnostic procedures.
- Avoid repeated freeze-thaw cycles. Aliquot reagents if needed.
- Handle all reagents on ice. Return to -20°C storage immediately after use.
- Wear appropriate PPE: gloves, lab coat, and eye protection at all times.
- Dispose of waste in accordance with local, state, and federal regulations.
- Do not use reagents past their expiry date.

7. PROTOCOL

PROTOCOL FOR POP-7 SEPARATION POLYMER (28ML)

CAPILLARY ELECTROPHORESIS SEPARATION OF SANGER SEQUENCING FRAGMENTS

INTENDED USE

This protocol describes the use of Enzoverta POP-7 Performance Optimized Polymer for high-resolution capillary electrophoresis separation of fluorescently labeled Sanger sequencing fragments on Applied Biosystems 3130/3130xl and 3730/3730xl Genetic Analyzers. The polymer provides read lengths exceeding 1,000 bases and is optimized for BigDye Terminator v3.1 chemistry.

MATERIALS REQUIRED

Instrumentation:

- Applied Biosystems 3130, 3130xl, 3730, or 3730xl Genetic Analyzer
- Capillary array (36 cm or 50 cm length, 50 µm internal diameter)
- Polymer pump syringe assembly
- Polymer block with integrated cooling system

Reagents and Consumables:

- Enzoverta POP-7 Separation Polymer, 28 mL bottle (store at 2-8°C)
- 10X running buffer (EDTA-Tris-TAPS formulation)
- Deionized water, 18.2 megohm-cm quality
- Conditioning solution (appropriate for capillary array type)
- Anode buffer container (cathode end)
- Cathode buffer container (anode end)
- Septum for polymer bottle (if not pre-installed)

Sample Requirements:

- Purified cycle sequencing reactions using BigDye Terminator chemistry
- Samples resuspended in Hi-Di formamide with size standard
- 96-well or 384-well optical plates compatible with instrument

SAFETY PRECAUTIONS

1. Wear appropriate personal protective equipment including laboratory coat, safety glasses, and nitrile gloves when handling polymer and buffer solutions.
2. POP-7 polymer contains formamide and acrylamide components. Consult Safety Data Sheet before use.
3. Ensure proper ventilation in the laboratory area during polymer handling.
4. Dispose of used polymer and buffers according to institutional chemical waste protocols.

PRE-PROTOCOL PREPARATION

POLYMER EQUILIBRATION

1. Remove the POP-7 polymer bottle from refrigerated storage at 2-8°C.
2. Allow the polymer bottle to equilibrate to room temperature (18-25°C) for a minimum of 4 hours before use.
3. Do not shake or aggressively invert the polymer bottle during equilibration, as this introduces air bubbles that interfere with injection and separation.
4. Gently rock the bottle from side to side 10-15 times to ensure homogeneity before installation.
5. Inspect the polymer visually for particulate matter or phase separation. Do not use if contamination is observed.

BUFFER PREPARATION

6. Prepare 1X running buffer by diluting 10X stock buffer 1:10 with deionized water (e.g., 100 mL of 10X buffer plus 900 mL water for 1 L total volume).
7. Mix the diluted buffer thoroughly by inversion or magnetic stirring for 5 minutes.
8. Filter the prepared 1X running buffer through a 0.2 µm cellulose acetate filter to remove particulates.
9. Degas the filtered buffer under vacuum for 15 minutes or sonicate for 10 minutes to remove dissolved gases.
10. Store prepared 1X running buffer at room temperature and use within 30 days of preparation.

INSTRUMENT PREPARATION

CAPILLARY ARRAY CONDITIONING (NEW ARRAYS ONLY)

11. If installing a new capillary array, perform initial conditioning before polymer installation.
12. Fill the pump block with deionized water and install on the instrument.
13. Run a water wash protocol: push water through capillaries at 400 psi for 10 minutes.
14. Install conditioning solution and run conditioning protocol: push conditioning solution at 400 psi for 30 minutes.
15. Follow with a water wash: push deionized water at 400 psi for 5 minutes to remove excess conditioning solution.
16. Allow capillaries to dry by leaving array installed with no fluid for 10 minutes.

POLYMER BLOCK INSTALLATION

17. Ensure the instrument polymer block temperature is set to 50°C for 3130/3130xl instruments or 30°C for 3730/3730xl instruments (verify in instrument software preferences).
18. Allow the polymer block to reach target temperature before polymer installation (minimum 20 minutes pre-heating time).
19. Remove the cap from the POP-7 polymer bottle and inspect the septum for proper seating.
20. Insert the polymer bottle vertically into the polymer block holder, ensuring the pump needle penetrates the septum fully.

21. Secure the bottle in the holder using the retaining clip or threaded collar (instrument-specific).
22. Verify that the polymer block cooling system is operational (listen for fan operation, check coolant circulation if liquid-cooled).

POLYMER DELIVERY SYSTEM PRIMING

23. Access the instrument

8. EXPECTED RESULTS

Under optimal conditions with well-prepared BigDye Terminator v3.1 sequencing reactions and properly maintained capillary arrays, POP-7 polymer delivers baseline-resolved peaks with Phred quality scores \geq Q20 for 800-900 bases and read lengths exceeding 1,000 bases at 99% accuracy. Typical performance on ABI 3730xl instruments shows sharp, symmetrical peaks with minimal dye blob interference and consistent signal-to-noise ratios $>10:1$ across all four fluorescent channels. Run-to-run reproducibility demonstrates $<5\%$ variation in migration time and peak spacing for fragments ranging from 50 to 1,200 bases.

9. TROUBLESHOOTING GUIDE

For troubleshooting assistance, contact techsupport@enzovera.com

10. DOCUMENT CONTROL

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