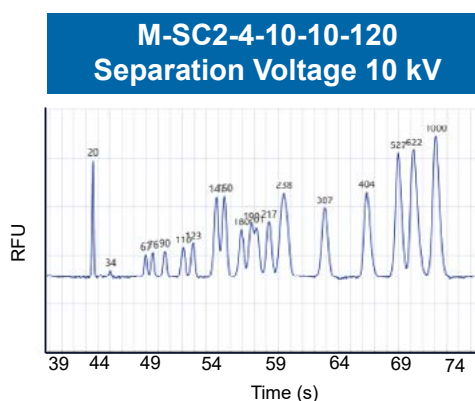
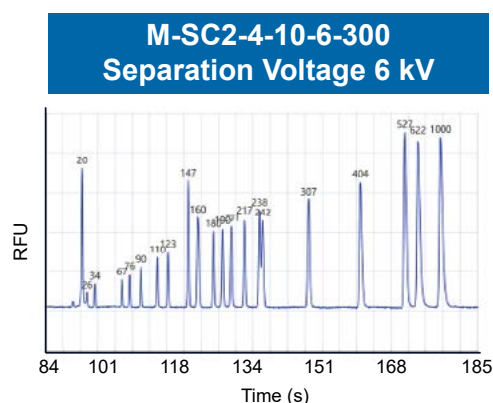


DNA Standard Cartridge: 20-5000 bp / 240 assays

Catalog #: CE106-DSR



Introduction:

The Standard DNA Analysis Cartridge Kit (Catalog No.CE1016-DSR) is designed for use with the GenoSep™ Capillary Electrophoresis System for the analysis of DNA fragment size and concentration. The kit is suitable for a variety of DNA applications, including cfDNA, PCR products, fragmented DNA libraries, and other DNA samples. Compared with traditional gel electrophoresis, the cartridge-based capillary electrophoresis workflow provides several advantages, including higher resolution, faster separation, lower sample consumption, higher detection sensitivity, and greater automation.

Product Components:

Cat. No.	Color	Description	Specifications	Storage
CE1016-DSR	SC2	Standard cartridge (SC2)	240 rxns	2-8 °C
CE1000-DAM1000	●	20-1,000 bp Alignment marker	100 µL	2-8 °C
CE1000-DSM1000	●	20-1,000 bp Size marker	100 µL	2-8 °C
CE1000-DSB	●	Separation buffer	60 mL	2-8 °C
CE1000-DDB	●	Dilution buffer	15 mL	2-8 °C
CE1000-MO	●	Mineral oil	15 mL	2-8 °C
/		Buffer tank	2 pcs	RT
CE1000-T		0.2 mL PCR tube	10 pcs	RT
CE1000-8T		8-strip PCR tube with cap	2 pcs	RT

Analytical Specifications:

Parameters	Description
Separation range	20-5000 bp
Detection limit	5 pg/μL
Max resolution (<500 bp)	4 bp (<500 bp)
Fragment size precision	2 % CV
Fragment size accuracy	6 %
Concentration precision	< 0.1 ng/μL: 10% CV □ 0.1-5 ng/μL: 5% CV
Concentration accuracy	20 %
Loading concentration range	0.005-50 ng/μL

Other Specifications:

Parameters	Description
Analysis	5 minutes / sample
Sample volume	≥ 10 μL
Sample consumption	<0.2 μL
Number of runs	240
Operation temperature	Room temperature (18-30 °C)
Shelf-life	Unopened - 6 months; 3 months after opening

Protocol:

Reagents and samples positions:

SM - Size Marker

AM - Alignment marker

P - P-position: Add 100 μL ddH₂O

C - C-position: Add 200 μL ddH₂O

S - Separation buffer: Add 800 μL Separation buffer

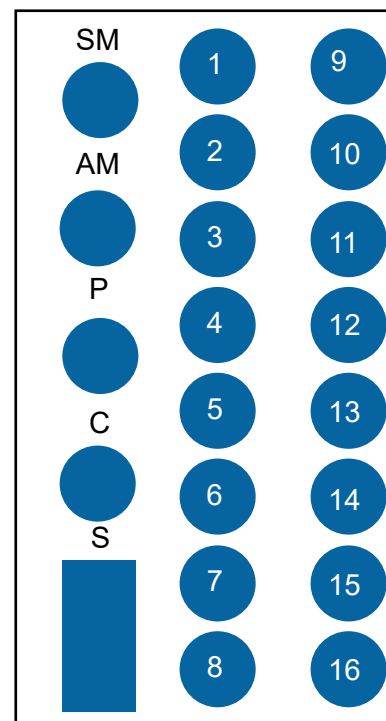
Positions 1-16 - samples to be tested

Note: after running 20 samples, the buffer in the P, C, and S wells need to be replaced.

Buffer Preparation: Alignment Marker (AM)

1. Allow the Alignment Marker to equilibrate to room temperature and mix thoroughly.

2. Pipette 10 μL of the Alignment Marker into a PCR tube or an 8-strip PCR tube.



Buffer and Sample layout on GenoSep platform

3. Vortex and briefly centrifuge the tube to ensure that the liquid is collected at the bottom and that no air bubbles are present. Carefully remove the cap.
4. Place the prepared Alignment Marker tube into any available position in the Marker holder designated for AM. In the software Marker settings, select the corresponding well position and the appropriate Alignment Marker type.

Buffer Preparation: Size Marker (SM)

The electronic Size Marker built into the software can be selected for analysis. If a real-time Size Marker is required, prepare it as follows:

1. Allow the Size Marker to equilibrate to room temperature and mix thoroughly. Pipette at least 10 μL of the Size Marker into a PCR tube or an 8-strip PCR tube.
2. Vortex and briefly centrifuge the tube to ensure that the liquid is collected at the bottom and that no air bubbles are present. Carefully remove the cap.
3. Place the prepared Size Marker tube into any available position in the Marker holder designated for SM. In the software Marker settings, select the corresponding well position and the appropriate Size Marker type.

Protocol continue:

Sample Preparation:

1. Quantify the sample using a fluorometer (e.g. Accuris Smart-Q or Thermofisher Qubit 4).
2. Dilute the sample in a PCR tube or an 8-strip PCR tube using Dilution Buffer (see below for recommended concentration).
3. Mix thoroughly and transfer 10 μL of the prepared sample into the tube for analysis.

For accurate concentration measurement: Dilute the sample to an appropriate concentration using undiluted Dilution Buffer before loading.

For improved detection sensitivity:

Use 10-fold diluted Dilution Buffer to dilute the sample to an appropriate concentration before loading. To prepare the 10-fold diluted buffer, add 10 μL of Dilution Buffer to 90 μL of ddH₂O and mix thoroughly.

4. Vortex and briefly centrifuge the prepared sample to ensure that the liquid is collected at the bottom of the tube and that no air bubbles are present. Carefully remove the cap.

Place the prepared sample tube into any available position in the Sample holder. In the software, select the corresponding well position, enter the Sample ID, and confirm the settings.

Note: The recommended loading concentration varies depending on the sample type. Smart-Q or Qubit 4 fluorometer is recommended for sample quantification. If the SmartDrop nano spectrophotometer is used for quantification, the sample loading concentration should be increased appropriately.

The recommended sample loading concentrations are as follows:

PCR products: 0.5–1 ng/μL

gDNA/FFPE samples: 5–10 ng/μL

cfDNA samples: 0.5–2 ng/μL

Libraries/fragmented DNA samples: 1–2 ng/μL

Note: For samples prepared in ddH₂O, dilute the sample 2- to 10-fold using Dilution Buffer before loading.

Special Note: If the sample concentration is too low or the resulting peak is not clearly detectable, use the High Sensitivity DNA Cartridge Kit (CE1016-DHS) for analysis.

Instrument Setup and Sample Processing

1. Connect GenoSep to PC and launch GenoSep app.
2. Turn ON the air pump and instrument.
3. Click on the connection  icon to pair instrument with the software.
4. Click on the “platform out” icon  and place the samples and buffers at designated positions refer to the diagram on page 3.

CRITICAL: PCR tube caps must be warped below the tube surface or clipped off completely ensuring proper operation.

5. Using the pin provided in the kit to “open up” the cartridge (see our technical video for details).

Note: After the cartridge is opened it must be stored in vertical position.

6. Click on “Change” within the cartridge window and insert a new cartridge and apply little pressure to firmly affix it on the instrument.
7. Check if the cartridge is appropriately installed. If not, reinsert the cartridge.

STEPS 8 - 10 should only be followed when installing the new cartridge. Otherwise skip to step 11.

8. Create a new program called “Purge”.

9. Select a test method "T-HV-Purge-120" to ensure that current remains a straight line.
10. Run the above program. **CRITICAL:** if the current fluctuates contact Accuris Instruments.
11. Create a new experiment name and select test method to be "T-Purge-120" and run the protocol twice.
12. Under the "Marker Selection" select AM and SM for the cartridge. For example, for DNA High Sensitivity Cartridge, AM is AM0101-20-1k and SM is NH1-SM0101020-1k.
13. Add samples to the software.
14. After "T-Purge-120" program is done, select unique method to run.
15. Click on Run.
16. After run is complete, analyze the peaks and click on the save icon to save the results.
17. After testing is complete, perform "T-purge-120" program twice.
18. After the run is complete, tap the Platform Out icon to eject the platform. Remove the samples and buffers, then tap the Platform In icon to return the platform to the instrument.
19. Remove the cartridge from the instrument and store it upright at 4°C.

**Accuris Instruments is a Division of
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