FlashGel® System Manual

Your guide to setup and usage of the FlashGel® System

For research use only

Contents

1 FlashGel® System introduction

The FlashGel® System offers a rapid and convenient solution for the electrophoresis of DNA and RNA, enabling quick screening of up to 32 samples without the need for traditional agarose gel preparation. Designed for speed and simplicity, it separates DNA in less than 7 minutes. The system allows real-time observation of DNA migration right at the bench — no need for a darkroom or UV light exposure. It requires 5- to 20-fold less nucleic acid load, saving time, reagents and sample volume compared to traditional agarose gel electrophoresis.

The complete FlashGel® System includes:

- Precast FlashGel® Cassettes
- FlashGel® Dock for running and visualizing samples
- FlashGel® Camera for easy capture of gel images

The compact camera easily connects via USB for safe, fast and efficient transfer of gel images. Document gel electrophoresis results within minutes!

Cassette types: Standard versus FLX

The FlashGel® System supports two cassette formats: the standard FlashGel® Cassette and the FlashGel® FLX Cassette. The standard cassette contains agarose with an integrated nucleic acid stain, making it compatible with conventional DNA or RNA loading buffers. In contrast, the FlashGel® FLX Cassette requires the use of a FlashGel® DNA or RNA Prestain Loading Buffer for visualization. While both cassette formats deliver fast and reliable results, the FlashGel® FLX Cassette offers greater flexibility, as it can be used for both DNA and RNA separation. Additionally, it has a shelf life of up to 24 months, providing a longer storage window compared to the standard cassette.

FlashGel® System terminology

Throughout this manual, the term FlashGel® System refers collectively to the complete electrophoresis platform offered by Lonza, including both the standard FlashGel® Cassettes and the FlashGel® FLX Cassettes, along with the associated dock and imaging components.

2 Safety information

Safety symbols

The following symbols alert the user to important operational, maintenance, and/or warranty requirements, or possible hazards exposure.

Symbol indicates a general caution or warning that the user may be aware of. Including but not limited to possible chemical or hazardous optical radiation emitted from this product.

Symbol indicates a warning of potential exposure to hazardous voltage where contact may result in death or serious injury.

General product warning statement

CAUTION: Hazardous voltage
Contact may cause death or serious injury
Caution should be exercised in the operation of this system as it can develop sufficient voltage and current to produce a lethal shock. To avoid any risk of injury, the system should only be operated by properly trained personnel and always in accordance with the instructions provided.

Prior to turning on the DC power source, ensure that the black lead is connected to the negative terminal and the red lead is connected to the positive terminal. Do not touch the FlashGel® Dock or Cassette while the high voltage supply is turned on. Do not flood wells, add samples, or extract bands while the high voltage leads are connected to the power supply.

Failure to adhere to these instructions could result in personal and/or laboratory hazards, as well as invalidate any warranty. Always turn off the DC power source prior to removing cassettes from the dock. For maximum safety, always operate this system in an isolated, low traffic area not accessible to unauthorized personnel. Never operate damaged or broken equipment.

CAUTION: To avoid accidental exposure to high voltage, do not reverse electrodes in order to run samples backwards.

Precautions
The FlashGel® Dock utilizes the blue light transilluminator technology to view fragments. It is safe to view cassettes on the lighted dock without UV light protection. Turn on the light only after the cassette is in place. Do not stare directly into the light.

CAUTION: Use the FlashGel® Mask to block light from the second tier of wells when using double-tier or FlashGel® Recovery Cassettes.

Wear gloves, lab coat, and safety glasses when handling FlashGel® Cassettes.
The gel and buffer in FlashGel® Cassettes contain a proprietary nucleic acid gel stain that is a potential mutagen. The FlashGel® FLX Prestain Loading Buffers contain proprietary nucleic acid stains that are potential mutagens. Follow state and local guidelines for handling and disposal of these materials.

Operating conditions for the FlashGel® Dock

Maximum limits

- High Voltage DC Input
- RNA (cat. no. 57027, 57028) 0 to 225 V
- All other formats 0 to 300 V
- Overvoltage Category I
- 15 watts power
- 50 mA current
- Dock light: 18 VDC low voltage DC input

Environmental conditions
Operating conditions:

- Pollution degree 2
- Temperature: 15°C to 35°C
- Humidity: 15% to 85% relative humidity, non-condensing
- For indoor use only
- Altitude up to 2000 m

Storage and shipping conditions (FlashGel® Dock)

- Temperature: 2°C to 60°C
- Humidity: 15% to 85% relative humidity, non-condensing

3 Cleaning, maintenance and disposal

Cleaning procedure

CAUTION: To avoid accidental exposure to high voltage, do not clean dock while connected to the high voltage power supply.

Clean the FlashGel® Dock with a cloth moistened with water or mild detergent. Do not immerse!

Maintenance

Visually inspect the dock prior to use for signs of wear, cracks or damage. Do not use if damage is found.

There are no user serviceable parts contained in the FlashGel® Dock.

Disposal

The stains in the FlashGel® Cassettes and FlashGel® FLX Prestain Loading Buffers are potential mutagens. Follow state and local guidelines for disposal of these materials. FlashGel® FLX Cassettes do not contain stains.

4 Specifications

Separation range

Product	Description
1.2% DNA Cassettes	50 bp – 4 kb (up to 10 kb with longer run times)
2.2% DNA Cassettes	10 bp – 1 kb
1.2% RNA Cassettes	0.5 kb – 9 kb
1.2% FLX Cassettes	For DNA: 100 bp – 4 kb (up to 10 kb with longer run times) For RNA: 0.5 kb – 9 kb
2.2% FLX Cassettes	For DNA: 20 bp – 1 kb
1.2% Recovery Cassettes	50 bp – 4 kb
2.2% Recovery Cassettes	10 bp – 1 kb

Cassette storage

Product	Description
DNA Cassettes	18°C to 26°C for 5 months from date of manufacture
RNA Cassettes	Please inquire
FLX Cassettes	18°C to 26°C for 24 months from date of manufacture
Recovery Cassettes	18°C to 26°C for 5 months from date of manufacture

Well volume

Product	Description
12 + 1 wells	Do not exceed 5 µl sample/well
16 + 1 wells	Do not exceed 5 µl sample/well
8 + 1 wells	Do not exceed 12 µl sample/well

Buffer storage

Product	Description
FlashGel® FLX DNA Prestain Loading Buffer	RT (room temperature) for 24 months from date of manufacture
FlashGel® FLX RNA Prestain Loading Buffer	-20°C for 24 months from date of manufacture

Dimensions (L x W x H)

Product	Description
Gel	70 mm (L) x 84 mm (W) x 2 mm (H)
Cassette	115 mm (L) x 107 mm (W) x 17 mm (H)
Dock	134 mm (L) x 120 mm (W) x 5 mm (H)

Equipment ratings

Electrophoresis input (high voltage DC)

Voltage	0 – 300 VDC
Power	15 W
Current	50 mA

Dock light transformer input (line voltage AC)

Voltage	100 – 240 VAC, 50 – 60 Hz
Current	1.0 A

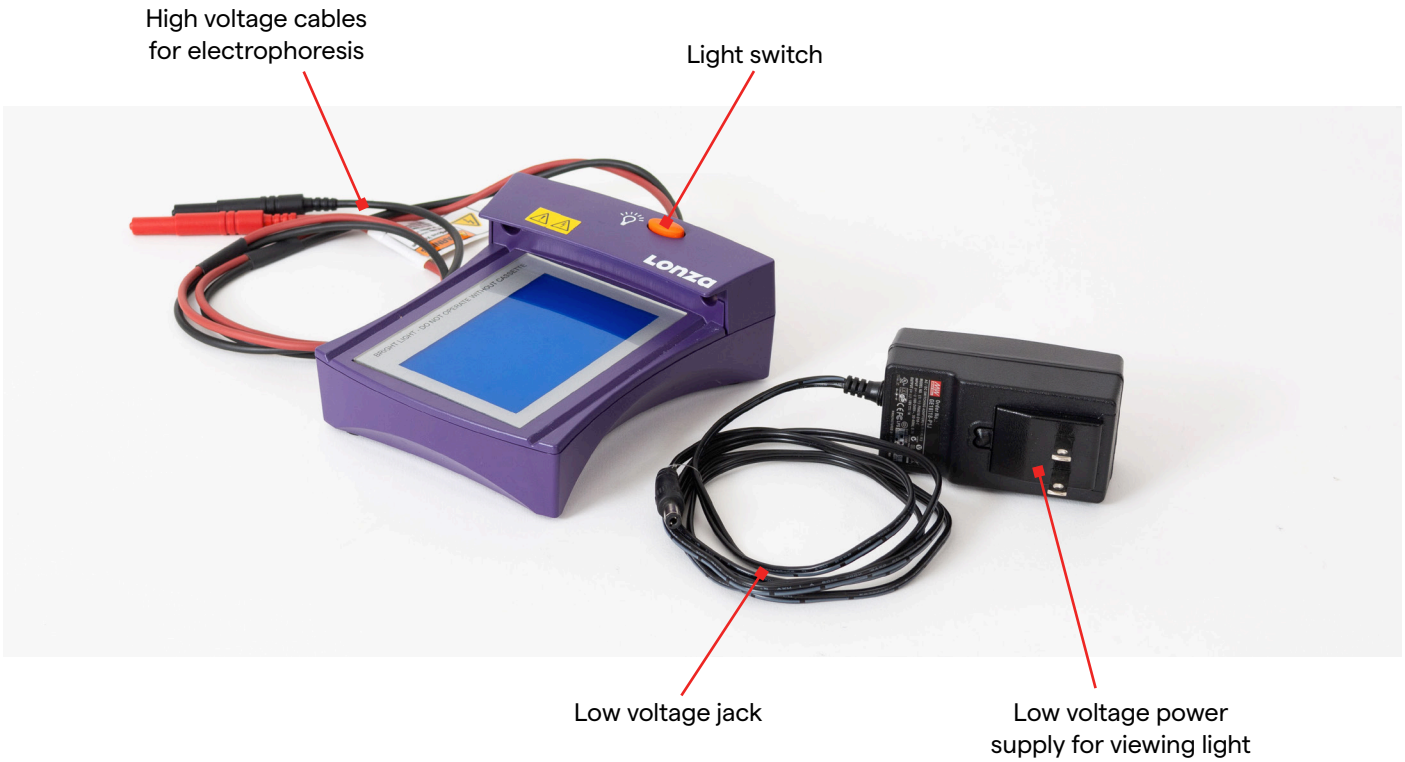
Dock light input (low voltage DC)

Voltage	18 VDC
Current	0.5 A

Electrical Connections

High voltage electrophoresis)	shielded, retractable banana plugs
Low voltage (light)	2.1 x 5.5 x 14 mm jack

FlashGel® Dock



5 FlashGel® System quick start guide

For standard FlashGel® Cassettes (Cat. No. 57023, 57029, 57031, 57032, 57027, 57028).

Important points

- Do not exceed 5 µL sample volume per lane for 12 + 1 well and 16 + 1 well cassettes; or 12 µL sample volume per lane for 8 + 1 well cassettes.
- Optimal sample concentrations are approximately 1/5 the typical per-band concentration of an ethidium bromide gel.
- Flood sample wells with water prior to loading, then load samples into wells filled with water.
- For best results, use FlashGel® Loading Dye and FlashGel® Markers. For sample recovery, use FlashGel® Recovery Buffer.
- Use the FlashGel® Mask when running double-tier cassettes.
- Use the FlashGel® Visualization Glasses when recovering samples.

Instructions

1. Refer to Table 1 (page 9) for recommended sample preparation and run conditions.
2. Remove white well seals and tear-off vent seals from cassette. Do not remove the black tips of vent seals remaining on the cassette.
3. Flood sample wells with distilled or deionized water. Tilt cassette to move excess fluid to the edge and blot off with a lint-free wipe. Do not blot wells directly. Leave wells filled with water for sample loading.
4. Insert cassette into dock. Insert FlashGel® Mask under the central tier of sample wells if using double-tier or recovery cassettes.
5. Load samples. Samples to be recovered should be loaded in upper tier sample wells.
6. Plug in high voltage cables, turn on power supply and set to recommended voltage.
7. Plug in low voltage power supply and turn on light as needed during run.
8. **A**) If using standard FlashGel® DNA and RNA cassettes: run for recommended time or until separation of desired fragments is complete. Proceed directly to step 13.

   B) For FlashGel® Recovery Cassettes: run and observe migration of sample. Immediately prior to desired sample reaching recovery wells (2nd-tier), stop the run and disconnect the high voltage cables. See complete details in steps 9 – 13.
9. Blot excess buffer from the recovery well(s) and add 20 µL of FlashGel® Recovery Buffer.
10. Remove FlashGel® Mask, reconnect voltage cables, and restart power. Use FlashGel® Visualization Glasses to observe band migration.
11. When the band of interest has migrated to the center of the recovery well, turn off power supply and disconnect voltage cables. Use a pipette to carefully remove the recovery buffer (containing the DNA) from the recovery well.
12. If necessary, steps 9 – 11 (addition of recovery buffer, electrophoresis, and recovery) may be repeated to increase recovery of higher DNA loads
13. Photograph using FlashGel® Camera, or other standard camera and transilluminator.

Table 1. Recommended sample preparation and run conditions

	DNA Cassettes	RNA Cassettes	Recovery Cassettes	FLX Cassettes
Sample volume	5 µL	5 µL	12 µL	5 µL
Optimal sample concentrations	Optimal DNA load levels are 5 – 20 ng/band in a 5 µl load. For best results, do not exceed 20 ng/band.	Optimal RNA load levels will vary depending upon RNA sample. For best results, do not exceed 200 ng/band in a 5 µL load.	Optimal DNA load levels are 50 – 500 ng/band in load volumes up to 12 µL.	Optimal DNA load levels are 5 – 20 ng/band in a 5 µL load. For best results, do not exceed 20 ng/band. Optimal RNA load levels will vary depending upon RNA sample. For best results, do not exceed 200 ng/band in a 5 µL load. For FlashGel® RNA Markers, 2.5 µL of a 10-fold dilution is suggested.
Sample preparation	For best results, dilute DNA samples in 1X FlashGel® Loading Dye. Dilute to optimal DNA load levels as described above.	**Denatured RNA samples:** prepare samples in 50% formaldehyde sample buffer and RNase-free water. Denature for 5 minutes at 65°C. **Native RNA samples:** Use FlashGel® Loading Dye.	For best results, dilute DNA samples in 1X FlashGel® Loading Dye. Dilute to optimal DNA load levels as described above.	**DNA Samples:** for best results, dilute 4 µL DNA sample in 1 µL FlashGel® FLX DNA Prestain Loading Buffer. You may need to pre-dilute DNA samples prior to this step to obtain final optimal DNA load levels as described above. **Denatured RNA samples:** dilute RNA samples in RNase-free water, then combine 2.5 µL diluted RNA sample and 2.5 µL FlashGel® FLX RNA Prestain Loading Buffer. The final 5 µL load should not exceed 200 ng RNA/band. Denature for 5 minutes at 70°C.
Voltage & run time	**Single-tier:** 275 V for 2 – 7 minutes **Double-tier:** 275 V for 2 – 5 minutes	**Single-tier:** 225 V for 4 – 8 minutes **Double-tier:** 225 V for 3 – 5 minutes	275 V for time needed to electrophorese bands to recovery wells. Varies by fragment size from 3+ minutes to 12-14 minutes.	**DNA Samples:** **Single-tier:** 275 V for 2 – 7 minutes **Double-tier:** 275 V for 2 – 5 minutes **RNA Samples:** **Single-tier:** 200 V for 10 minutes **Double-tier:** 200 V for 3 – 5 minutes
Recovered concentration and volume	N/A	N/A	Sample recoveries are typically 80 – 90%, depending upon fragment Recovery volumes are typically 15 – 50 µL.	N/A
Separation range	**1.2%:** 50 bp – 10 kb **2.2%:** 10 bp – 1 kb Separation of fragments > 4 kb will be improved by running longer at lower voltage.	**1.2%:** 0.5 kb – 9 kb.	**1.2%:** 50 bp – 10 kb **2.2%:** 10 bp – 1 kb Separation of fragments > 4 kb will be improved by running longer at lower voltage.	**1.2%:** 100 bp – 10 kb DNA 0.5 – 9 kb RNA **2.2%:** 20 bp – 1 kb DNA Separation of fragments > 4 kb will be improved by running longer at lower voltage. Detection of small fragments will be improved by running longer at lower voltage.
Recommended markers	**1.2%:** FlashGel® DNA Marker 100 bp – 4 kb **2.2%:** FlashGel® DNA Marker 50 bp – 1.5 kb **Double-tier cassettes:** FlashGel® DNA Marker 100 bp – 3 kb	FlashGel® RNA Marker 0.5 kb – 9 kb	FlashGel® DNA Marker 100 bp – 3 kb FlashGel® QuantLadder 100 bp – 3 kb **2.2%:** FlashGel® DNA Marker 50 bp – 1.5 kb	**DNA Samples:** **1.2%:** FlashGel® DNA Marker 100 bp – 4 kb **2.2%:** FlashGel® DNA Marker 50 bp – 1.5 kb **Double-tier cassettes:** FlashGel® DNA Marker 100 bp – 3 kb **RNA Samples:** FlashGel® RNA Marker 0.5 kb – 9 kb

6 FlashGel® System with FlashGel® FLX Cassettes quick start guide

For FlashGel® FLX Cassettes (Cat. No. 317258, 317259, 317260, 317281)

Important points

- Do not exceed 5 µL sample volume per lane for 12 + 1 well and 16 + 1 well cassettes.
- Optimal sample concentrations are approximately 1/5 the typical per-band concentration of an ethidium bromide gel.
- Flood sample wells with water prior to loading, then load samples into wells filled with water.
- FlashGel® FLX Cassettes must use the appropriate DNA or RNA Prestain Loading Buffer for sample detection.
- Use the FlashGel® Mask when running double-tier cassettes.
- For best results with restriction enzyme digests: optimal loading levels are in the range of 20 – 40 ng of DNA. Minimize salt concentrations by using < 1.5 µL of digest in the total sample (5 µL) for the FlashGel® FLX Cassette.

Instructions

1. Refer to Table 1 (page 9) for recommended sample preparation and run conditions.
2. Remove white well seals and tear-off vent seals from cassette. Do not remove the black tips of vent seals remaining on the cassette.
3. Flood sample wells with distilled or deionized water. Tilt cassette to move excess fluid to the edge and blot off with a lint-free wipe. Do not blot wells directly. Leave wells filled with water for sample loading.
4. Insert cassette into dock. Insert FlashGel® Mask under the central tier of sample wells if using double-tier cassettes.
5. Load samples.
6. Plug in high voltage cables, turn on power supply and set to recommended voltage.
7. Plug in low voltage power supply and turn on viewing light as needed during run.
8. Run for recommended time or until separation of desired fragments is complete.
9. Photograph using FlashGel® Camera or other standard camera and transilluminator.

7 FlashGel® System instructions

7.1 Instructions for separation of DNA

For standard FlashGel® DNA Cassettes (Cat No. 57023, 57029, 57031, 57032).

Introduction

The FlashGel® System is recommended for fast separation and analysis of DNA.

Application examples:

- Sizing and/or quantitation of PCR or restriction fragments 10 bp – 10 kb.
- Confirmation of PCR amplification.

Separation of DNA fragments can be monitored in real time at the lab bench without the use of UV illumination.

Fragments separated with the FlashGel® System may be photographed with the FlashGel® Camera or other standard documentation systems.

FlashGel® DNA Cassettes are not recommended for recovery. Use FlashGel® Recovery Cassettes (page 16) for DNA recovery.

Important information

Run conditions and resolution
The FlashGel® System is designed for fast, high-voltage separation of fragments ranging in size from 10 bp – 10 kb. Cassettes may be run at lower voltages for longer times to improve separation of fragments > 4 kb (page 14). Monitor the run and optimize conditions as necessary. Fragments will run faster on a warm dock. Reduce run time or lower voltage as necessary. Refer to Table 1 (page 9) for recommended run conditions.

Visualization of bands on the FlashGel® Dock
DNA and marker bands will be visible on the lighted dock

under typical lab lighting. The degree of visibility may vary based upon the overall light intensity in the lab. Bands are best viewed looking straight down at the dock in a space that minimizes light intensity and reflection.

Alternatively, band separation may be visualized on a computer screen with the aid of the FlashGel® Camera.

To ensure adequate visibility of a marker for monitoring the run on the dock, use the FlashGel® DNA Marker or FlashGel® QuantLadder. Refer to Figure 2 (page 13) for details on DNA concentrations.

DNA bands are visible on the dock throughout the run.

Loading dye and markers

The FlashGel® System is compatible with standard gel loading dyes and markers. Bromophenol blue dye does not migrate in FlashGel® Cassettes; however, samples containing bromophenol blue may be used, as sample migration is not affected. Use the FlashGel® Loading Dye and FlashGel® Marker or FlashGel® QuantLadder for best results.

Preparing the gel for running

For best results, use a transfer pipette or squirt bottle to flood sample wells with distilled or deionized water before loading samples or markers. This will ensure adequate moisture in the wells. Flood the wells, then tilt the cassette and use a lint-free wipe or small piece of blotting paper to remove excess liquid from the cassette. Do not blot the wells directly. Leave wells filled with water for sample loading.

DNA sensitivity levels

The FlashGel® System uses a proprietary stain that is 5 – 20 times more sensitive than ethidium bromide stain. In general, optimal sample concentrations are approximately 1/5 the typical per-band concentration of an ethidium bromide gel.

Optimal DNA load levels on FlashGel® Cassettes are 5 – 20 ng per band. DNA levels below 5 ng per band may not be visible on the dock, but levels as low as 0.1 ng per band can be detected on gel images. DNA levels up to 80 ng per band can be used; however, levels exceeding 20 ng per band may result in band distortion. DNA levels may be adjusted to provide best performance for the image analysis system used.

Because of the sensitivity of the FlashGel® System, most DNA samples should be diluted, and load volume per well must not exceed 5 µL.

For best results, dilute DNA samples into 1X FlashGel® Loading Dye such that a 5 µL sample contains 5 – 10 ng DNA per band.

Gel running instructions

CAUTION: Wear gloves, lab coat and safety glasses when handling FlashGel® Cassettes.

1. Prepare samples. Refer to Table 1 (page 9) for recommended sample preparation.
2. Tear open the pouch and remove the cassette.

   NOTE: If cassette is wet, dry with a clean wipe.

   NOTE: Air pockets may be present between the gel and cassette. These will not affect band migration.
3. Place the cassette on a flat surface and pull the tab to remove the white well seal and the tear-off vent seal. Do not remove the black tips of the vent seals partially covering the side vent holes.
4. Flood all sample wells with distilled or deionized water. Tilt the cassette and use a lint-free wipe or small piece of blotting paper to remove excess fluid. Do not blot the wells directly. Leave wells filled with water for sample loading.

   NOTE: For best results, flood wells with AccuGENE® Molecular Biology Water (Cat. No. 51200).

CAUTION: To avoid accidental exposure to high voltage, do not flood wells while cassette is connected to the high voltage power supply.

5. Place the cassette on the dock and slide it into place. The cassette should snap securely into the dock.
6. Load samples and markers.

CAUTION: To avoid accidental exposure to high voltage, do not load samples while cassette is connected to the high voltage power supply.

7. Connect the low voltage power supply to the dock by inserting the lead into the receptacle at the back of the dock and plugging in the power supply. This is the power supply to the light source.
8. Turn on the dock light by pressing the orange button on the top of the unit. The light can be turned on as needed during the run to monitor the separation process.

   NOTE: The light will automatically shut off after 10 minutes. Re-start by pressing the orange button.

9. Connect the high voltage leads to the power supply and set power to the recommended voltage (Table 1, page 9).

   NOTE: Typical starting currents should range from 20 – 25 mA for DNA gels. Run until desired separation is obtained for the fragments of interest. Under the conditions outlined, DNA fragments of 50 bp – 100 bp will migrate out of the gel in 7 – 8 minutes. Refer to Figure 1 (below) for separation results at various run times.

   NOTE: Running multiple cassettes in quick succession may require slight adjustment of running conditions as bands will run faster as the dock gets warmer. Monitor separation and reduce voltage and run time if necessary.

   NOTE: Some expression of buffer from the wells is normal.

CAUTION: Handle cassettes only after voltage is turned off and leads are disconnected.

10. Run DNA cassettes until desired separation is reached for the fragment of interest.
11. Turn off voltage and disconnect leads from the power supply prior to removing the cassette.
12. Record the gel data using the FlashGel® Camera, digital photography or other image capture systems. See Figure 2 (page 13) for details on typical cameras.

Reference information

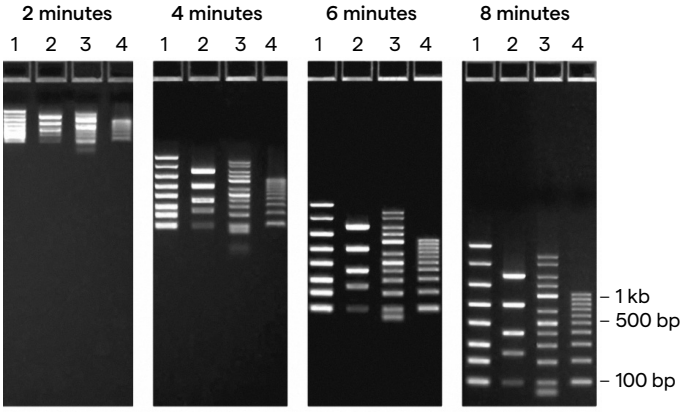


Figure 1.
Examples of separation at various run times at 275 V on a FlashGel® DNA Cassette (1.2%, 12+1 well single-tier).

Sample lanes left to right:

Lane 1: FlashGel® DNA Marker 100/200/300/500/800/1250/2000/4000 bp (5 µL load 1:5 dilution)

Lane 2: FlashGel® QuantLadder 100/250/400/800/1500 bp (5 µL load 1:5 dilution)

Lane 3: Lonza Marker 50 bp – 2500 bp (3 µL load 1:5 dilution)

Lane 4: Lonza Ladder 100 bp intervals (3 µL load 1:15 dilution)

Detection of DNA fragments on FlashGel® DNA Cassettes

- Illuminate cassettes using the FlashGel® Dock's blue light transilluminator, or any UV light system.
- Photograph using FlashGel® Camera, or any system used for standard ethidium bromide stained gels.
- For CCD systems, use the system's existing ethidium bromide filter.

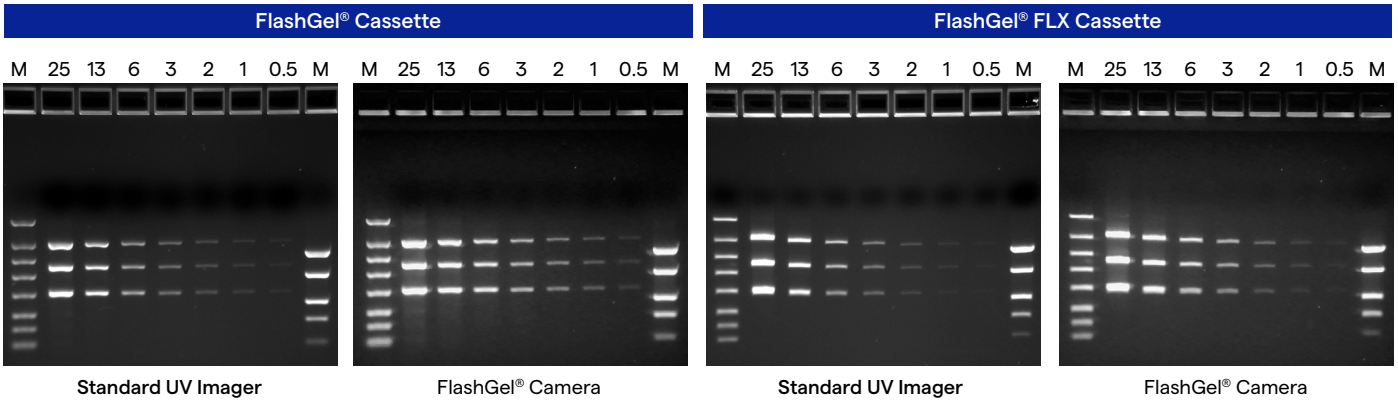


Figure 2.
Band capture by a standard UV imager and FlashGel® Camera. A stock sample was prepared consisting of a mixture of 500, 1000, and 2000 bp DNA fragments. A series of 2-fold dilutions (in TE buffer) were prepared starting from this stock. Samples for separation on 1.2% FlashGel® or FlashGel® FLX Cassettes were prepared by combining 4 µL aliquots (25 ng of DNA) of the sample dilutions with 1 µL of 5X loading buffer (standard buffer for FlashGel® Cassettes or DNA Prestain Buffer for FlashGel® FLX Cassettes). Samples were separated using the FlashGel® Dock; separations were run at 275 V for 5 minutes and imaged as noted. "M" = marker (FlashGel® Marker in first lane and FlashGel® QuantLadder in last lane). Images were captured with a standard imaging system or a FlashGel® Camera.

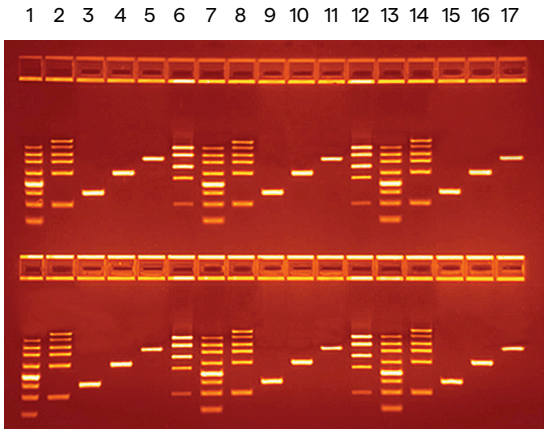


Figure 3.
Separation of markers and DNA fragments on a FlashGel® DNA Cassette (2.2%, 16 + 1 well double-tier).

Sample lanes left to right:

Lane 1, 7, 13: FlashGel® 50 bp – 1.5 kb Marker (recommended for 2.2% cassettes)

Lane 2, 8, 14: FlashGel® 100 bp – 3 kb Marker (recommended for double-tier cassettes)

Lane 6, 12: FlashGel® QuantLadder

Lane 5 – 7, 9 – 11, 15 – 17: 8 ng loads of 150 bp, 300 bp and 800 bp DNA fragments

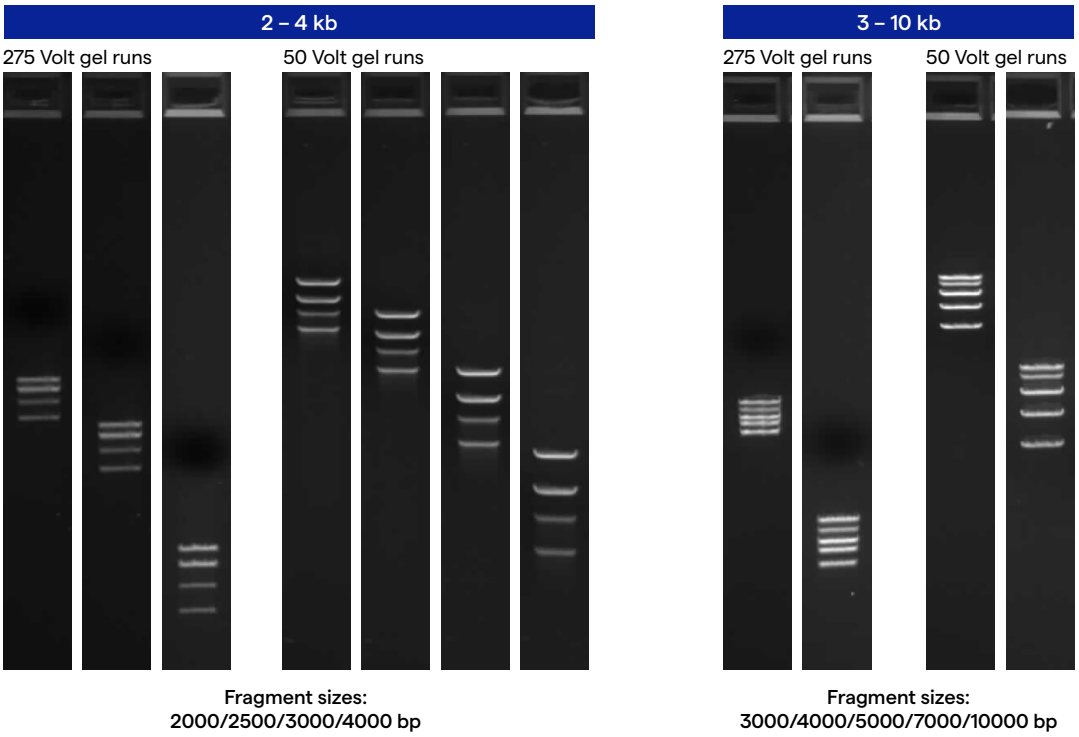


Figure 4.
Improving large DNA fragment separation on the FlashGel® System by varying voltage and run time.

7.2 Instructions for separation of RNA

For standard FlashGel® RNA Cassettes (Cat. No. 57027, 57028)

Introduction

The FlashGel® System is recommended for fast separation and analysis of RNA, including:

- Verification and analysis of total RNA 0.5 kb – 9 kb
- Checking for RNA degradation
- Quick checks of native RNA

Fragments separated with the FlashGel® System may be photographed using the FlashGel® Camera or other standard documentation systems.

FlashGel® RNA Cassettes are not recommended for recovery.

Important information

Run conditions and resolution
The FlashGel® System is designed for fast, high-voltage separations. Cassettes may be run at lower voltages for longer times to improve separation of higher molecular weight fragments. Monitor the run and optimize conditions as necessary. Fragments will run faster on a warm dock. Reduce run time, or lower voltage as necessary. Refer to Table 1 (page 9) for recommended run conditions.

Visualization of bands on the FlashGel® Dock
RNA and marker bands will be visible on the lighted dock under typical lab lighting. The degree of visibility may vary based upon the overall light intensity in the lab. Bands are best viewed looking straight down at the dock in a space that minimizes light intensity and reflection.

RNA bands will be visible on the dock for the first 3 – 4 minutes of the run, after which they fade and then reappear after a > 10 minute post-run hold period. The FlashGel® DNA Marker may be used to monitor the RNA run.

Loading dye and markers
The FlashGel® System for RNA is compatible with standard formaldehyde loading dye and RNA markers. Bromophenol blue dye does not migrate fully in FlashGel® Cassettes; however, samples containing bromophenol blue may be used, as sample migration is not affected. Use the Lonza Formaldehyde Sample Buffer or FlashGel® Loading Dye (for native RNA) and FlashGel® RNA Marker for best results.

Preparing the gel for running
For best results, use a transfer pipette or squirt bottle to flood sample wells with RNase-free water before loading samples or markers. This will ensure adequate moisture in the wells. Flood the wells, then tilt the cassette and use a lint-free wipe or small piece of blotting paper to remove excess liquid from the cassette. Do not blot the wells directly.

RNA sensitivity levels
The FlashGel® System uses a proprietary stain that is 5 – 20 times more sensitive then ethidium bromide stain and will detect RNA quantities < 10 ng per band.

For denatured RNA, dilute samples with formaldehyde loading buffer such that a 5 µL load contains < 200 ng RNA per band.

For native RNA, dilute samples into FlashGel® Loading Dye such that a 5 µL load contains < 200 ng RNA per band.

Gel running instructions

CAUTION: Wear gloves, lab coat and safety glasses when handling FlashGel® Cassettes.

1. Prepare samples. Refer to Table 1 (page 9) for recommended sample preparation.
2. Tear open the pouch and remove the cassette.

   NOTE: If cassette is wet, dry with a clean wipe.

   NOTE: Air pockets may be present between the gel and cassette. These will not affect band migration.
3. Place the cassette on a flat surface and pull the tab to remove the white well seal and tear-off vent seals. Do not remove the black tips of the seal covering the side vent holes.
4. Flood all sample wells with RNase-free water. Tilt the cassette and use a lint-free wipe or small piece of blotting paper to remove excess fluid. Do not blot the wells directly. Leave wells filled with water for sample loading.

   NOTE: For best results, flood wells with AccuGENE® Molecular Biology Water (Cat. No. 51200).

CAUTION: To avoid accidental exposure to high voltage, do not flood wells while cassette is connected to the high voltage power supply.

5. Place the cassette on the dock and slide it into place; the cassette should snap securely into the dock.

CAUTION: To avoid accidental exposure to high voltage, do not load samples while cassette is connected to the high voltage power supply.

6. Load samples and markers.

CAUTION: Use the FlashGel® Mask to block light from the second tier of wells when using double-tier cassettes.

7. Connect the low voltage power supply to the dock by inserting the lead into the receptacle at the back of the dock and plugging in the power supply. This is the power supply to the light source.
8. Turn on the dock light by pressing the orange button on the top of the unit. The light can be turned on as needed during the run to monitor the separation process.

   NOTE: The light will automatically shut off after 10 minutes. Re-start by pressing the orange button.
9. Connect the high voltage leads to the power supply and set power to the recommended voltage (Table 1, page 9).

   NOTE: Typical starting currents should be 25 – 30 mA. Run until desired separation is obtained for the fragments of interest.

   NOTE: Running multiple cassettes in quick succession may require slight adjustment of running conditions as bands will run faster as the dock gets warmer. Monitor separation and reduce voltage and run time if necessary.

   NOTE: Some expression of buffer from the wells during run is normal.

CAUTION: Handle cassettes only after voltage is turned off and leads are disconnected.

10. Run RNA cassettes for 8 minutes, then turn off voltage and disconnect leads from the power supply prior to removing the cassette.
11. Remove the cassette and let it stand at room temperature for > 10 minutes, or until the fragments are visible at the desired intensity. Maximum intensity is reached in approximately 45 minutes.
12. Record the gel data using the FlashGel® Camera, digital photography or other image capture systems. See Figures 5 and 6 (page 16) for RNA images.

Reference information

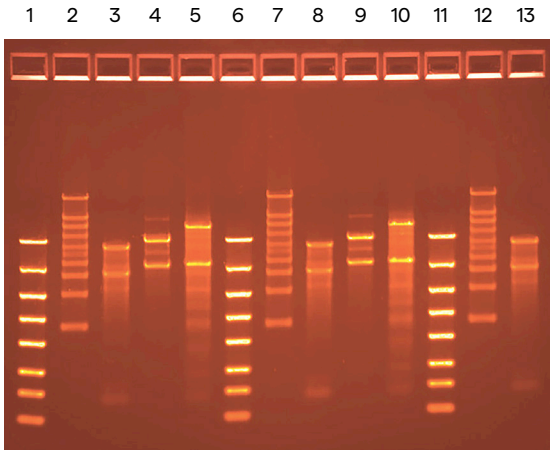


Figure 5.
Detection of RNA fragments on a FlashGel® RNA Cassette. Cassette run for 8 minutes at 225 V; photographed 20 minutes post-run.

Sample lanes left to right:

Lane 1, 6, 11: FlashGel® DNA Marker (for visualization during run)

Lane 2, 7, 12: 100 ng RNA Ladder

Lane 3, 8, 13: 100 ng *E. coli* total RNA

Lane 4, 9: ~100 ng purified *S. cervevisiae* total RNA

Lane 5, 10: 100 ng mouse thymus total RNA

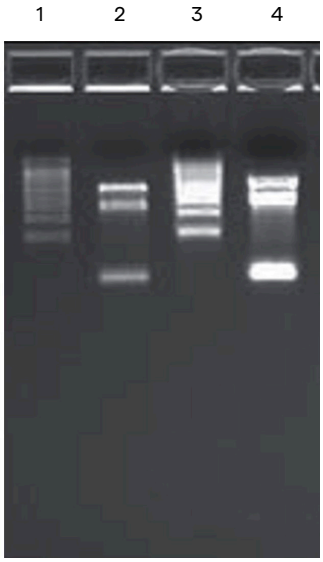


Figure 6.
Quick check of native RNA fragments on a FlashGel® RNA Cassette (1.2%, 12+1 single-tier). Cassette run for 4 minutes at 225 V followed by immediate imaging.

Sample lanes left to right:

Lane 1: FlashGel® RNA Marker, 50 ng

Lane 2: *E. Coli* total RNA, 50 ng

Lane 3: FlashGel® RNA Marker, 250 ng

Lane 4: *E. Coli* total RNA, 250 ng

7.3 FlashGel® System for recovery instructions

Recovery instructions for FlashGel® Recovery Cassettes (Cat No. 57022, 57051)

Introduction

The FlashGel® System for Recovery is recommended for fast separation and recovery of sheared DNA and fragments from 10 bp – 4 kb.

Separation of DNA fragments can be monitored in real time and fragments can be recovered at the lab bench without the use of UV illumination or the need for band excision.

Fragments separated with the FlashGel® Recovery System are compatible with standard molecular biology applications (PCR amplification, ligation and cloning, etc.)

Important information

Run conditions and resolution

The FlashGel® System for Recovery is designed for fast, high-voltage separations and recovery. Cassettes may be run at lower voltages for longer times to improve separation of larger fragments. Monitor the run and optimize conditions as necessary for the fragment of interest. Fragments will run faster on a warm dock. Reduce run time or lower voltage as necessary. Do not exceed 14 minutes total run time. Refer to Table 1 (page 9) for recommended run conditions.

Visualization of bands on the FlashGel® Dock

DNA and marker bands will be visible on the lighted dock under typical lab lighting. The degree of visibility may vary based upon the overall light intensity in the lab. Bands are best viewed looking straight down at the dock in a space that minimizes light intensity and reflection.

To ensure adequate visibility of a marker for monitoring the run, use the FlashGel® DNA Marker or FlashGel® QuantLadder.

Loading dye and markers

The FlashGel® System is compatible with standard gel loading dyes and markers. Bromophenol blue dye does not migrate in FlashGel® Cassettes; however, samples containing bromophenol blue may be used, as sample migration is not affected. Use the FlashGel® Loading Dye and FlashGel® Marker or FlashGel® QuantLadder for best results.

Preparing the gel for running

For best results, use a transfer pipette or squirt bottle to flood sample wells with distilled or deionized water before loading samples or markers. This will ensure adequate moisture in the wells. Flood the wells, then tilt the cassette and use a lint-free wipe or small piece of blotting paper to remove excess liquid from the cassette. Do not blot the wells directly.

For best results, dilute DNA sample into 1X FlashGel® Loading Dye so the sample (12 µL maximum load) contains the suggested amount of DNA per band (see next paragraph).

DNA sensitivity levels
The FlashGel® System uses a proprietary stain that is 5 – 20 times more sensitive than ethidium bromide stain. In general, optimal sample concentrations are approximately 1/5 the typical per-band concentration of an ethidium bromide gel.

Optimal DNA load levels on FlashGel® Recovery Cassettes are 50 – 500 ng per band. DNA levels may be adjusted to provide the best performance for the fragments of interest. High DNA load levels may not provide adequate resolution if the fragment of interest is relatively close in size to other contaminating fragments.

DNA recovery
For optimal recovery efficiency (particularly of larger DNA fragments) add FlashGel® Recovery Buffer to the Recovery wells prior to extracting DNA fragments.

Resolution of recovered DNA
For best resolution of recovered DNA, dilute the sample to be run on a subsequent gel at least 1:1 with water (e.g. 2 µL recovered DNA, 2 µL water, 1 µL 5X FlashGel® Loading Dye).

Gel running instructions

CAUTION: Wear gloves, lab coat and safety glasses when handling FlashGel® Cassettes.

1. Prepare samples. Refer to Table 1 (page 9) for recommended sample preparation.
2. Tear open the pouch and remove the cassette.

   NOTE: If cassette is wet, dry with a clean wipe.

   NOTE: Air pockets may be present between the gel and cassette. These will not affect band migration.
3. Place the cassette on a flat surface and pull the tab to remove the white well seal and tear-off vent seal. Do not remove the black tips of the seal covering the side vent holes.
4. Flood both tiers of wells with distilled or deionized water. Tilt the cassette and use a lint-free wipe or small piece of blotting paper to remove excess fluid. Do not blot the wells directly. Leave wells filled with water for sample loading.

   NOTE: For best results, flood wells with AccuGENE® Molecular Biology Water (Cat. No. 51200).

CAUTION: To avoid accidental exposure to high voltage, do not flood wells while cassette is connected to the high voltage power supply.

5. Place the cassette on the dock and slide it into place. The cassette should snap securely into the dock. Slide the FlashGel® Mask in place under the second tier of wells to minimize light passing through the wells and increase the ease of viewing as samples separate.

CAUTION: To avoid accidental exposure to high voltage, do not load samples while cassette is connected to the high voltage power supply.

CAUTION: Use the FlashGel® Mask to block light from the second tier of wells when using Recovery Cassettes.

6. Load samples and markers.
7. Connect the low voltage power supply to the dock by inserting the lead into the receptacle at the back of the dock and plugging in the power supply. This is the power supply to the light source.
8. Turn on the dock light by pressing the orange button on the top of the unit. The light can be turned on as needed during the run to monitor the separation process.

   NOTE: The light will automatically shut off after 10 minutes. Re-start by pressing the orange button.

CAUTION: Handle or touch cassettes only after voltage is turned off and leads are disconnected.

9. Connect the high voltage leads to power supply and set power at recommended voltage (Table 1, page 9).

   NOTE: Typical starting currents should range from 20 – 25 mA.

   NOTE: Some expression of buffer from the wells during run is normal. Wear gloves, lab coat and safety glasses when handling.

10. Allow run to proceed, monitoring migration of sample(s) to be recovered. **Just prior to desired sample(s) reaching recovery wells (2nd tier), turn off power and disconnect the high voltage cables. Do not remove the cassette from the dock.**

CAUTION: Handle or touch cassettes only after voltage is turned off and leads are disconnected.

11. Blot excess buffer from the recovery well(s) and add 20 µL/well of FlashGel® Recovery Buffer.
12. Remove FlashGel® Mask, reconnect voltage cables, and restart power. Use FlashGel® Visualization Glasses to observe DNA band migration.
13. Run until the band to be recovered has entered the recovery well, and the leading edge of the band has moved to the front edge of the recovery well.

    NOTE: When recovering more than one fragment from gel, recover smallest fragment first.
14. **Turn off power, disconnect leads**, and then use a pipette to remove the recovery buffer containing the DNA.

CAUTION: Wear gloves, lab coat and safety glasses when handling FlashGel® Cassettes.

NOTE: The amount recovered will not be the full 20 µL loaded into the well.

15. For recovery of large quantities of DNA (> 350 ng), it may be necessary to repeat the electrophoresis-recovery cycle to retrieve the maximum DNA material.

    If necessary, add an additional 20 µL of FlashGel® Recovery Buffer and start the run again until the sample has once again moved to the front edge of the recovery well, then recover. Repeat as necessary, being careful to always turn off the power and disconnect the leads prior to recovering samples.

CAUTION: Handle or touch cassettes only after voltage is turned off and leads are disconnected.

NOTE: The buffer capacity of the FlashGel® Recovery Cassette will support ~12 – 14 minutes of total run time at 275 V. Use care in recovery of multiple fragments or exceptionally large fragments to avoid excess run time.

NOTE: It may be necessary to repeat steps 10 – 15 when recovering sheared DNA if your size selection is wider than the recovery well. Utilize the different cassette concentrations available to optimize your size selection needs.

16. Sample recoveries may be quickly assessed using the standard FlashGel® Markers for DNA and/or the FlashGel® QuantLadder.

    Prepare sample of recovered DNA by combining equal volumes of recovered DNA and water then adding an appropriate amount of 5X FlashGel® Loading Dye. The volume of DNA sample for recovery check depends upon the amount of input DNA loaded on the recovery gel. Estimate the amount of DNA in the recovered sample by comparison to bands in the FlashGel® QuantLadder (Figure 8, page 19).

    NOTE: Depending upon the amount of run time used for the recovery step, the same FlashGel® Cassette may be used to check the recovered sample. The cassette will be functional up to ~12 – 14 minutes of total run time at 275 V.

Reference information

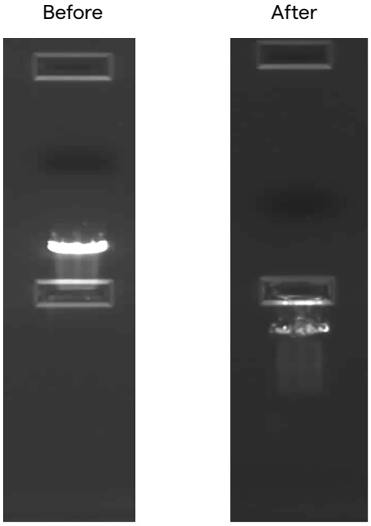


Figure 7.
FlashGel® Recovery Cassette before and after recovery of a 1000 bp DNA fragment (300 ng load).

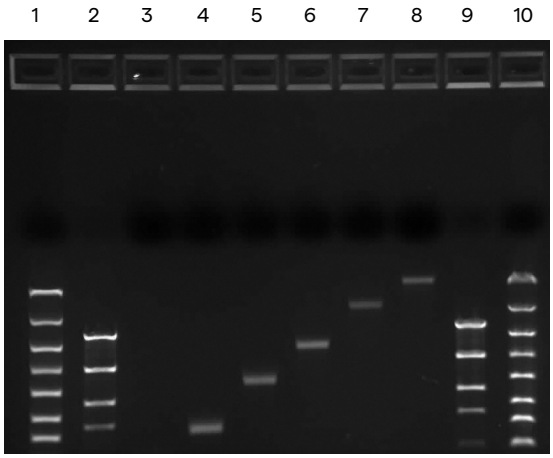


Figure 8.
Recovery of a wide range of DNA fragments on a FlashGel® Recovery Cassette. Samples (100 ng) of DNA fragments were separated and recovered using the FlashGel® Recovery System. Image above shows the analysis of 3 µl aliquots of recovered DNA using a 1.2% DNA FlashGel® Cassette.

Sample lanes left to right:

Lane 1: FlashGel® DNA Marker 100 – 4000 bp

Lane 2: FlashGel® QuantLadder (2.5 µL)

Lane 3: 50 bp DNA fragment

Lane 4: 200 bp DNA fragment

Lane 5: 500 bp DNA fragment

Lane 6: 1000 bp DNA fragment

Lane 7: 2000 bp DNA fragment

Lane 8: 4000 bp DNA fragment

8 FlashGel® System with FlashGel® FLX Cassettes instructions

For FlashGel® FLX Cassettes (Cat No. 317258, 317259, 317260, 317281) used with FlashGel® Dock (Cat No. 57025).

8.1 Instructions for separation of DNA

This section applies to FlashGel® FLX Cassette part codes used with FlashGel® FLX DNA Prestain Loading Buffer (Cat. No. 316992).

Introduction

The FlashGel® System is recommended for fast separation and analysis of DNA.

FlashGel® FLX Cassettes used together with FlashGel® FLX DNA Prestain Loading Buffer enable:

- Sizing and/or quantitation of PCR or restriction fragments 10 bp – 10 kb
- Confirmation of PCR amplification.

Separation of DNA fragments can be monitored in real time at the lab bench without the use of UV illumination.

DNA fragments separated with the FlashGel® System and FLX Cassettes may be photographed with the FlashGel® Camera or other standard documentation systems.

FlashGel® FLX Cassettes are not recommended for recovery. Use FlashGel® Recovery Cassettes (page 16) for DNA to be recovered.

Important information

Run conditions and resolution
The FlashGel® System is designed for fast, high-voltage separation of fragments 10 bp to 10 kb. Cassettes may be run at lower voltages for longer times to improve separation of fragments > 4 kb (page 14). Monitor the run and optimize conditions as necessary. Fragments will run faster on a warm dock. Reduce run time or lower voltage as necessary. Refer to Table 1 (page 9) for recommended run conditions.

Detection of smaller fragments (< 100 bp for 1.2% cassettes, and < 20 bp for 2.2% cassettes) may be diminished under higher voltage run conditions and/or longer run times. Adjust voltage and run conditions to meet your sample needs.

Visualization of bands on the FlashGel® Dock
DNA and marker bands will be visible on the lighted dock under typical lab lighting. The degree of visibility may vary based upon the overall light intensity in the lab. Bands are best viewed looking straight down at the dock in a space that minimizes light intensity and reflection.

Alternatively, band separation may be visualized on a computer screen with the aid of the FlashGel® Camera.

To ensure adequate visibility of a marker for monitoring the run on the dock, use the FlashGel® DNA Marker or FlashGel® QuantLadder.

DNA bands are visible on the dock throughout the run.

Loading dye and markers
The FlashGel® FLX Cassettes are compatible with samples containing standard gel loading dyes and standard markers, however, FlashGel® FLX DNA Prestain Loading Buffer must be added to the samples to enable detection. Bromophenol blue dye does not migrate in FlashGel® Cassettes; however, samples containing bromophenol blue may be used, as sample migration is not affected. Use the FlashGel® Marker or FlashGel® QuantLadder for best results.

Preparing the gel for running
For best results, use a transfer pipette or squirt bottle to flood sample wells with distilled or deionized water before loading samples or markers. This will ensure adequate moisture in the wells. Flood the wells, then tilt the cassette and use a lint-free wipe or small piece of blotting paper to remove excess liquid from the cassette. Do not blot the wells directly.

DNA sensitivity levels
The FlashGel® System uses a proprietary stain that is 5 – 20 times more sensitive than ethidium bromide stain. In general, optimal sample concentrations are approximately 1/5 the typical per-band concentration of an ethidium bromide gel.

Optimal DNA load levels on FlashGel® FLX Cassettes are 5 – 20 ng per band. DNA levels below 5ng per band may not be visible on the dock, but levels as low as 0.5 ng per band can be detected on gel images/photos. DNA levels up to 80 ng per band can be used; however, levels exceeding 20 ng per band may result in band distortion. DNA levels may be adjusted to provide best performance for the image analysis system used.

Because of the sensitivity of the FlashGel® System, most DNA samples should be diluted, and load volume per well must not exceed 5 µL.

For best results, dilute DNA samples with water such that a 5 µL (4 µL diluted sample, 1 µL FlashGel® FLX DNA Prestain Loading Buffer) sample contains 5 – 10 ng DNA per band.

Gel running instructions

CAUTION: Wear gloves, lab coat and safety glasses when handling FlashGel® Cassettes.

1. Prepare samples. Refer to Table 1 (page 9) for recommended sample preparation.
2. Tear open the pouch and remove the cassette.

   NOTE: If cassette is wet, dry with a clean wipe.

   NOTE: Air pockets may be present between the gel and cassette. These will not affect band migration.
3. Place the cassette on a flat surface and pull the tab to remove the white well seal and the tear-off vent seal. Do not remove the black tips of the vent seals partially covering the side vent holes.
4. Flood all sample wells with distilled or deionized water. Tilt the cassette and use a lint free wipe or small piece of blotting paper to remove excess fluid. Do not blot the wells directly. Leave wells filled with water for sample loading.

CAUTION: To avoid accidental exposure to high voltage, do not flood wells while cassette is connected to the high voltage power supply.

NOTE: For best results, flood wells with AccuGENE® Molecular Biology Water (Cat. No. 51200).

5. Place the cassette on the dock and slide it into place. The cassette should snap securely into the dock.
6. Load samples and markers.

CAUTION: To avoid accidental exposure to high voltage, do not load samples while cassette is connected to the high voltage power supply.

7. Connect the low voltage power supply to the dock by inserting the lead into the receptacle at the back of the dock and plugging in the power supply. This is the power supply to the light source.
8. Turn on the dock light by pressing the orange button on the top of the unit. The light can be turned on as needed during the run to monitor the separation process.

   NOTE: The light will automatically shut off after 10 minutes. Re-start by pressing the orange button.
9. Connect the high voltage leads to power supply and set the power to the recommended voltage (Table 1, page 9).

   NOTE: Typical starting currents for a run at 275 V should range from 20 – 25 mA for FlashGel® FLX Cassettes. Under higher voltage run conditions, detection of fragments of 100 bp or less may be decreased.

   NOTE: Running multiple cassettes in quick succession may require slight adjustment of running conditions as bands will run faster as the dock gets warmer. Monitor separation and reduce voltage and run time if necessary.

   NOTE: Some expression of buffer from the wells is normal.

CAUTION: Handle cassettes only after voltage is turned off and leads are disconnected.

10. Run DNA cassettes until desired separation is reached for the fragment of interest.
11. Turn off voltage and disconnect leads from the power supply prior to removing the cassette.
12. Record the gel data using the FlashGel® Camera, digital photography or other image capture systems. See Figure 2 (page 13) for details on typical cameras.

8.2 Instructions for separation of RNA

This section applies to FlashGel® FLX Cassette part codes used with FlashGel® FLX RNA Prestain Loading Buffer (Cat. No. 316993).

Introduction

The FlashGel® System and FlashGel® FLX Cassettes are recommended for fast separation and analysis of RNA, including:

- Verification and analysis of total RNA 0.5 kb – 9 kb
- Checking for RNA degradation
- Checking RNA products from transcription reactions.

Fragments separated with the FlashGel® System may be photographed using the FlashGel® Camera or other standard documentation systems.

FlashGel® FLX Cassettes are not recommended for recovery.

Important information

Run conditions and resolution
The FlashGel® System is designed for fast, high-voltage separations. Cassettes may be run at lower voltages for longer times to improve separation of higher molecular weight fragments. Monitor the run and optimize conditions as necessary. Fragments will run faster on a warm dock. Reduce run time or lower voltage as necessary. Refer to Table 1 (page 9) for recommended run conditions.

Visualization of bands on the FlashGel® Dock
RNA and marker bands will be visible on the lighted dock under typical lab lighting. The degree of visibility may vary based upon the overall light intensity in the lab. Bands are best viewed looking straight down at the dock in a space that minimizes light intensity and reflection.

Loading dye and markers
The FlashGel® System and FlashGel® FLX Cassettes are intended for use with RNA samples prepared using FlashGel® FLX RNA Prestain Loading Buffer. Bromophenol blue dye does not migrate fully in FlashGel® FLX Cassettes; however, samples containing bromophenol blue may be used, as sample migration is not affected. Use the Lonza FlashGel® RNA Marker for best results. Use FlashGel® FLX DNA Prestain Loading Buffer for native RNA samples.

Preparing the gel for running
For best results, use a transfer pipette or squirt bottle to flood sample wells with RNase-free water before loading samples or markers. This will ensure adequate moisture in the wells. Flood the wells, then tilt the cassette and use a lint-free wipe or small piece of blotting paper to remove excess liquid from the cassette. Do not blot the wells directly.

RNA sensitivity levels
The FlashGel® System uses a proprietary stain that is 5 – 20 times more sensitive then ethidium bromide stain and will detect RNA quantities < 10 ng per band.

For denatured RNA, dilute samples 1:1 with FlashGel® FLX RNA Prestain Loading Buffer such that a 5 µL load contains < 200 ng RNA per band.

Gel running instructions

CAUTION: Wear gloves, lab coat and safety glasses when handling FlashGel® Cassettes.

1. Prepare samples. Refer to Table 1 (page 9) for recommended sample preparation.
2. Tear open the pouch and remove the cassette.

   NOTE: If cassette is wet, dry with a clean wipe.

   NOTE: Air pockets may be present between the gel and cassette. These will not affect band migration.
3. Place the cassette on a flat surface and pull the tab to remove the white well seal and tear-off vent seals. Do not remove the black tips of the seal covering the side vent holes.
4. Flood all sample wells with RNase-free water. Tilt the cassette and use a lint-free wipe or small piece of blotting paper to remove excess fluid. Do not blot the wells directly. Leave wells filled with water for sample loading.

   NOTE: For best results, flood wells with AccuGENE® Molecular Biology Water (Cat. No. 51200).

CAUTION: To avoid accidental exposure to high voltage, do not flood wells while cassette is connected to the high voltage power supply.

5. Place the cassette on the dock and slide it into place. The cassette should snap securely into the dock.

CAUTION: To avoid accidental exposure to high voltage, do not load samples while cassette is connected to the high voltage power supply.

6. Load samples and markers. Refer to Table 1 (page 9) for sample preparation and recommended markers.

CAUTION: Use the FlashGel® Mask to block light from the second tier of wells when using double-tier cassettes.

7. Connect the low voltage power supply to the dock by inserting the lead into the receptacle at the back of the dock and plugging in the power supply. This is the power supply to the light source.
8. Turn on the dock light by pressing the orange button on the top of the unit. The light can be turned on as needed during the run to monitor the separation process.

   NOTE: The light will automatically shut off after 10 minutes. Re-start by pressing the orange button.
9. Connect the high voltage leads to power supply and set power at recommended voltage (Table 1, page 9).

   NOTE: Typical starting currents for 200 V run should be 15 – 20 mA. Run until desired separation is obtained for the fragments of interest.

   NOTE: Running multiple cassettes in quick succession may require slight adjustment of running conditions as bands will run faster as the dock gets warmer. Monitor separation and reduce voltage and run time if necessary.

NOTE: Some expression of buffer from the wells during run is normal.

10. Run RNA cassettes for 8 – 10 minutes, or until adequate separation is achieved, then turn off voltage and disconnect leads from the power supply prior to removing the cassette.

CAUTION: Handle cassettes only after voltage is turned off and leads are disconnected.

11. Record the gel data using the FlashGel® Camera, digital photography or other image capture systems.

9 Ordering information

Cat. No.	Description	Size/Format
FlashGel® System for FlashGel® DNA Cassettes, for FlashGel® RNA Cassettes and for FlashGel® FLX Cassettes		
57025	FlashGel® Dock	One size
57040	FlashGel® Camera	One size
57068	FlashGel® Power Supply	One size
57062	FlashGel® Device Pack	Includes FlashGel® Dock, FlashGel® Power Supply and FlashGel® Camera
57069	FlashGel® Power Supply Pack	Includes FlashGel® Dock and FlashGel® Power Supply
57065	FlashGel® Camera Pack	Includes FlashGel® Dock and FlashGel® Camera
FlashGel® System — Pre-stained FlashGel® DNA Cassette Format		
57023	FlashGel® DNA Cassettes	1.2% agarose, 12+1 well single-tier format, 9 pk
57029	FlashGel® DNA Cassettes	1.2% agarose, 16+1 well double-tier format, 9 pk
57031	FlashGel® DNA Cassettes	2.2% agarose, 12+1 well single-tier format, 9 pk
57032	FlashGel® DNA Cassettes	2.2% agarose, 16+1 well double-tier format, 9 pk
50462	FlashGel® Loading Dye	5 x 1 mL vials, 5X concentration
50473	FlashGel® DNA Marker, 100 bp – 4 kb	500 µL Ready-to-load, recommended for 1.2% cassettes Band sizes: 100/200/300/500/800/1250/2000/4000 bp
57033	FlashGel® DNA Marker, 50 bp – 1.5 kb	500 µL Ready-to-load, recommended for 2.2% cassettes Band sizes: 50/100/150/200/300/500/800/1500 bp
57034	FlashGel® DNA Marker, 100 bp – 3 kb	500 µL Ready-to-load, recommended for double-tier cassettes Band sizes: 100/300/500/800/1500/3000 bp
50475	FlashGel® QuantLadder	250 µL Ready-to-load, band sizes: 100/250/400/800/1500 bp
57026	FlashGel® DNA Kit	Includes FlashGel® DNA Cassettes 1.2% 12+1 well single tier 9 pk, FlashGel® Loading Dye, and FlashGel® Marker 100 bp – 4 kb
FlashGel® System — Pre-stained FlashGel® RNA Cassette Format		
57027	FlashGel® RNA Cassettes	1.2% agarose, 12+1 well single-tier format, 9 pk
57028	FlashGel® RNA Cassettes	1.2% agarose, 16+1 well double-tier format, 9 pk
50571	Formaldehyde Sample Buffer	RNA denaturing sample buffer, contains bromophenol blue and xylene cyanol, 5 x 1 mL
50462	FlashGel® Loading Dye	RNA native sample buffer, 5 x 1 mL vials, 5X concentration
50577	FlashGel® RNA Marker	0.5 bp – 9 kb, 50 µg (1 µg/ mL)
51200	AccuGENE® Molecular Biology Water (DNase/RNase free)	For flooding sample wells and diluting RNA, 1 L
57024	FlashGel® RNA Kit	Includes FlashGel® RNA Cassettes 1.2% 12+1 well single tier 9 pk, RNA Marker, Formaldehyde Sample Buffer, and Molecular Biology Water
FlashGel® System – FlashGel® FLX Format		
317258	FlashGel® FLX Cassettes	1.2% agarose, 12+1 well single-tier format, 9 pk
317259	FlashGel® FLX Cassettes	1.2% agarose, 16+1 well double-tier format, 9 pk
317260	FlashGel® FLX Cassettes	2.2% agarose, 12+1 well single-tier format, 9 pk
317281	FlashGel® FLX Cassettes	2.2% agarose, 16+1 well double-tier format, 9 pk
316992	FlashGel® FLX DNA Prestain Loading Buffer	5x loading buffer with DNA stain, 1 mL
316993	FlashGel® FLX RNA Prestain Loading Buffer	2x loading buffer with RNA stain, 1 mL
FlashGel® System — Pre-stained FlashGel® Recovery Cassette Format		
57051	FlashGel® Recovery Cassettes	1.2% agarose, 8+1 double-tier format, 9 pk
57022	FlashGel® Recovery Cassettes	2.2% agarose, 8+1 double-tier format, 9 pk
57060	FlashGel® Recovery Buffer	2 x 500 µL vials
57050	FlashGel® Recovery Kit	Includes FlashGel® Recovery Cassettes 1.2% 8+1 well double tier 9 pk, FlashGel® Recovery Buffer, FlashGel® Loading Dye, FlashGel® QuantLadder, and Visualization Glasses

Return to TOC

10 Warranty and liability

This product was produced utilizing the highest practical standards of materials, workmanship, and design. Lonza Rockland, Inc. warrants that the product has been tested and will meet or exceed published specifications. This warranty is valid only if the product has been operated and maintained according to the instructions provided.

Lonza Rockland, Inc. warrants this product to be free from defects in materials and workmanship under normal service for one year from date of shipment. If the product proves defective during this period, Lonza Rockland, Inc., will repair or replace it at our option, free of charge, if returned to us postage prepaid. This warranty does not cover: damage in transit, damage caused by carelessness, misuse or neglect, normal wear through frequent use, damage caused by solvent corrosion, damage caused by improper handling or user alteration, nor unsatisfactory performance as a result of conditions beyond our control. Lonza Rockland, Inc., shall in no event be liable for incidental nor consequential damages, including without limitation, lost profits, loss of income, loss of business opportunities, loss of use and other related damages, however caused, nor any damage arising from the incorrect use of the product.

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