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FlashGel™ System

General FAQs.

What types of gels do you have for the FlashGel™ System?

We offer FlashGel™ Cassettes for DNA, DNA recovery and RNA separation. FlashGel™ DNA Cassettes are available at either 1.2% or 2.2% agarose, and in 12+1 single-tier (13 wells) or 16+1 double-tier formats (34 wells). DNA recovery cassettes are supplied as 8+1 well double-tier. Our FlashGel™ RNA Cassettes, 1.2% agarose, are available in 12+1 single-tier (13 wells) or 16+1 double-tier formats (34 wells).

Is the material in the cassette hazardous?

The stain in the cassette is present at such low levels that it is not considered hazardous, according to OSHA or EU hazard criteria. A copy of the MSDS is available online. The stain in the cassette is a potential mutagen. Wear gloves, safety glasses and a lab coat when handling. Use the same precautions when handling the cassettes as you would ethidium bromide stained gels.

How should I dispose of the cassettes?

Dispose of the cassettes the same way you dispose of ethidium bromide stained gels. Follow state and local guidelines for disposal of these materials.

Can I cast my own gels to run on the FlashGel™ Dock?

No. These cassettes are unique and proprietary. In order to use this system a special, buffer, stain, and cassette are required.

Can I run gels other than FlashGel™ Cassettes on the FlashGel™ Dock?

No. The FlashGel™ Cassettes and FlashGel™ Dock are a single system, designed to work together. FlashGel™ RNA and DNA Cassettes are not compatible with other chambers. The dock is not compatible with other gels.

What is the stain in the cassette?

The stain in the FlashGel™ Cassettes is a proprietary fluorescent nucleic acid stain. It is not commercially available as a separate stain.

Does the system have a built-in power supply?

The system includes a low-voltage power supply for the transilluminator. The system requires an external electrophoresis power supply with up to a 275 V capacity.

Does the system have a built-in transilluminator?

The FlashGel™ Dock has a built-in blue light transilluminator for real time visualization of the bands.

What wavelength will excite the stain? Can I use a UV transilluminator?

The FlashGel™ Dock has a blue light transilluminator that excites the fluorescent dye at 450 nm. The stain has a secondary excitation peak in the UV range (i.e., 302 nm and 312 nm). Therefore, the bands can also be detected on a UV transilluminator.

What is the maximum well volume?

The maximum volume per well for the standard DNA and RNA cassettes is 5 µl. The recovery cassettes are designed to hold more and can be filled to 12 µl.

What happens if I load too much or too little sample?

The FlashGel™ System is very flexible. It is best to experiment with the system and adjust the levels to optimize your results. Optimal DNA load levels are 5-20 ng per band in a 5 µl load. DNA fragments ≥ 5 ng are visible on the FlashGel™ Dock; fragments as low as 0.10 ng per band are detectable on images. DNA concentrations of >20 ng per band may result in distortion when viewed on the FlashGel™ Dock. For purposes of recovery, heavy amounts of DNA should not cause issues as long as desired fragment is clearly distinct from adjacent bands in sample. Optimal RNA load levels will depend upon the sample; 10 ng per band are detectable on FlashGel™ RNA Cassettes.

At what voltage do I need to run the cassettes? Can I speed up or slow down the run?

We recommend that DNA cassettes be run at 275 V and RNA cassettes at 225 V. We do not recommend running a gel at a higher voltage than 275 V. Runs at lower voltage for longer time periods may improve separation of larger fragments (>1000 bp). See our Application Note (Resource Notes™ Fall 2008, pp 21) or Fig. 4 of the manual.

What is the FlashGel™ Mask?

The FlashGel™ Mask is a flexible strip that slides under the FlashGel™ Cassette to block light from the second tier of wells when using double-tier cassettes.

How should the cassettes be stored?

The cassettes should be stored between 18°C and 26°C. Shelf life of DNA cassettes is 5 months from the date of manufacture. For RNA cassettes, please contact Scientific Support.

What are the cassette / gel dimensions?

The gel dimensions are 70 mm (L) x 84 mm (W) x 2 mm (H). The cassette dimensions are 115 mm (L) x 107 mm (W) x 17 mm (H).

What type of loading dye should I use in the FlashGel™ System?

The system is compatible with most loading dyes. The FlashGel™ Loading Dye will provide optimal performance for DNA and native RNA samples. Denatured RNA samples should be prepared 1:1 in our Formaldehyde Sample Buffer and RNase free water (denature for 5 minutes at 65°C).

NOTE: Bromophenol Blue does not migrate in this system. It will not interfere with DNA migration; it simply does not leave the wells.

Do I have to use the FlashGel™ Markers?

The DNA system is compatible with markers between 10 bp and 4,000 bp. The RNA system is compatible with markers between 0.5 bp and 9 Kb. For the best performances use our FlashGel™ Markers which have been specifically optimized for the different cassette types:

FlashGel™ Cassette Type	Recommended FlashGel™ Marker
1.2% DNA	**Cat. No. 50473 - 100 bp – 4 kb DNA Marker**
2.2% DNA	**Cat. No. 57033 - 50 bp – 1.5 Kb DNA Marker**
2-tier DNA	**Cat. No. 57034 - 100 bp – 3 Kb DNA Marker**
DNA Recovery	**Cat. No. 50475 - 100 bp – 1.5 kb DNA Quant Ladder**
RNA	**Cat. No. 50577 - 0.5 bp – 9 Kb RNA Marker**

FlashGel™ Dock

What should I do if my dock breaks?
Contact Lonza Scientific Support. The warranty information is in the product protocol that ships with all docks and cassette boxes.

Is the FlashGel™ Dock UL or CE listed?
The FlashGel™ Dock has received a CE rating and contains the CE mark.

FlashGel™ Camera

What gel documentation systems work with FlashGel™ Cassettes?
The FlashGel™ Camera is the easiest and most convenient documentation solution specifically designed for use with the FlashGel™ System.

Most other standard gel documentation systems will work with FlashGel™ Cassettes. Conditions may require adjustments to optimize results. Remember, the FlashGel™ System uses a proprietary stain that is 5-20 times more sensitive than ethidium bromide stain. In general, use per band DNA and RNA concentrations 1/5 of those normally used for ethidium bromide detection.

Is the FlashGel™ Camera UL or CE listed?
The FlashGel™ Camera has received a CE rating and contains the CE mark.

Is the FlashGel™ Camera compatible with a Mac?
No. Unfortunately at this time the software is only available for PC.

What type of software is provided with the FlashGel™ Camera?
The FlashGel™ Camera comes with capture software. With the software you view the gel and capture live images for printing or to save as a file for further analysis.

What image formats can I save the image?
The FlashGel™ Capture Software will allow you to save an image to one of the three common image file formats, BMP, JPEG or TIFF.

FlashGel™ System for RNA

Why are my RNA bands disappearing?
RNA samples are visible on the FlashGel™ Dock for up to 4 minutes, after which they fade because the fast running dye doesn't have time to bind. The bands will reappear with increasing intensity following a 10-20 minute post-run hold as the dye reabsorbs.

FlashGel™ System for Recovery

Can I recover my sample RNA/DNA from the cassette – is the gel accessible?
The FlashGel™ System for recovery delivers highly efficient recovery, free from inhibitors and UV-induced damage, in a simple 5 -10 minute protocol. The Gel is not accessible. Contact Lonza Scientific Support for more information.

What is in the recovery buffer?
The composition of the recovery buffer is proprietary.

Can I use water instead of the recovery buffer?
For small fragments water or TE has been used with success, however, using the recovery buffer prevents the sample from going through the well too fast and enhances recovery.

Is the recovered sample compatible with downstream applications?
Yes, the recovered product can be used directly for re-amplification, cloning, or other techniques.
See Resource Notes™ Spring 2009, pp 17-20.

FlashGel™ Power Supply

What are the specifications?
The FlashGel™ Power Supply Certified by CE for Global standards (NA, Europe and AsiaPac).

What is the output voltage?
It is 10 - 300V / 1V.

Does it have power cords for all regions?
Yes.

FlashGel™ System Troubleshooting Guide

When I opened my pouch, the cassette was wet. Is this normal?
A small amount of buffer in the pouch is normal. Wipe the cassette dry before use.

Is it OK to run the cassette with the camera on top?
It is not recommended to run the FlashGel™ with the camera hood on top and light on as this will cause extra heat build-up which can cause denaturation of smaller DNA fragments leading to fuzzy bands.

I've noticed small bubbles between the wells in my cassettes; should I be concerned?
No, these are simply small delaminations that may occur in our double-tier cassettes. They will have no effect on the image or the functionality of the gel.

Buffer was coming out of the wells during my gel run. Is this normal?
Some buffer expression is normal during the run. Do not touch the cassette until the high voltage leads are disconnected. Wear gloves, safety glasses and lab coats when handling cassettes.

FlashGel™ Cassette

Problem	Cause	Solution
Buffer Leaking	Cracked cassette.	Cannot use gel
	Buffer leaking from shroud.	Cannot use gel
No Contact / AMP read ≤3 mA	Visually see glue on rods.	File the rods
	Broken/Chipped rods.	Cannot use gel
	No buffer in rod chamber.	Cannot use gel
Sample Loss	Short or truncated wells.	Cannot use gel
	Delamination (gel separates from cassette) near well.	Cannot use gel
	Well bottom punctured, Pipette may have gone through.	Use another well, load gels more perpendicularly
Sample spills over to adjacent wells	Short or truncated well.	Cannot use gel
	Delamination (gel separates from cassette) near well.	Cannot use gel

FlashGel™ Dock

Problem	Cause	Solution
No Contact / AMP read ≤3 mA	Faulty electrophoresis (high voltage) power supply.	Try new dock or change high voltage power supply unit
	Dock has loose component.	Try new dock
	Dock leads have worn out on high voltage power supply unit (leads slip out of power supply easily).	Try new dock
	Loose FlashGel Cassette on dock.	Try new dock
	Dock spring is not at correct angle.	Try new dock
No Light	Check low voltage power supply connections.	Unplug power supply from dock and plug in again / Try new power supply
	Green light on low voltage power supply should be on.	Replace low voltage power supply
	Outlet plug adaptor on low voltage power supply may not be on correctly.	Remove outlet plug adaptor on power supply and snap back in place

Some components of the FlashGel™ System are sold under licensing agreements. The nucleic acid stain in this product is manufactured and sold under license from Molecular Probes, Inc., and the FlashGel™ Cassette is sold under license from Invitrogen IP Holdings, Inc. and is for use only in research applications or quality control. It is covered by pending and issued patents. The FlashGel™ Dock technology contains Clare Chemical Research, Inc. Dark Reader® transilluminator technology and is covered under US Patents 6,198,107, 6,512,236 and 6,914,250. The electrophoresis technology is licensed from Temple University and is covered under US Patent 6,905,585.

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