Formaldehyde-Free RNA Gel Kits

Code	Description	Size
N726-KIT	**Formaldehyde-Free RNA Gel Kit**	15 large gels or 30 mini-gels
1B1384-KIT	**Rapid Formaldehyde-Free RNA Gel Kit**	15 large gels or 30 mini-gels

General Information

The Formaldehyde-Free RNA Gel Kit and Rapid Formaldehyde-Free RNA Gel Kit are safer alternatives to formaldehyde-containing agarose gels for denaturing electrophoresis of RNA. The kits provide a non-volatile substitute for formaldehyde as well as a non-mutagenic RNA stain, which eliminates the need for ethidium bromide staining.

The non-volatile denaturing agent included in the gel solution and loading buffer of both kits effectively eliminates RNA secondary structure to ensure optimal resolution during electrophoresis. Gel casting and electrophoresis can be safely performed on the bench top without a fume hood. In contrast to formaldehyde-free gel kits containing glyoxal, VWR Life Science AMRESCO's kits do not require extended incubations steps or buffer recirculation during electrophoresis.

The Formaldehyde-Free RNA Gel Loading Buffer conveniently reduces the number of steps required for sample preparation and post-electrophoresis RNA visualization. The non-mutagenic, fluorescent dye included in the loading buffer stains RNA during the denaturation step and visualizes RNA immediately post-electrophoresis, without the need for further processing. Bright green bands are detected by standard UV transillumination and a green filter, such as SYBR® Green.

Although both kits feature the same safe RNA denaturant and RNA visualization dye, they are distinguished from one another by differences in buffer formulations. The Formaldehyde-Free RNA Gel Kit directly replaces hazardous formaldehyde RNA gels, requiring an equivalent amount of time to resolve RNA. The Rapid Formaldehyde-Free RNA Gel Kit contains specially formulated buffer to enable electrophoresis at higher voltages, thereby reducing electrophoresis time by half. RNA can be resolved effectively in as little as 15 minutes on a 1% agarose mini-gel.

- Hood-free pouring and running – completely formaldehyde-free
- Denature and stain samples in a single step
- Instant RNA band visualization
- Compatible with Northern blotting

Storage/Stability

Store at room temperature (18 – 26°C).

Product Use Limitations

For research use only. Not for therapeutic or diagnostic use.

Materials Supplied

Component	**N726-KIT**
Formaldehyde-Free RNA Gel Solution, 10X	N722-150ML
Formaldehyde-Free RNA Gel Running Buffer, 10X	N724-500ML (2)
Formaldehyde-Free RNA Gel Loading Buffer, 2X	N725-3X2ML

Component	**1B1384-KIT**
Rapid Formaldehyde-Free RNA Gel Solution, 10X	1B1374-150ML
Rapid RNA Gel Running Buffer, 10X	1B1373-500ML (2)
Formaldehyde-Free RNA Gel Loading Buffer, 2X	N725-3X2ML

Required Materials Not Supplied

Agarose
Deionized water
RNA Marker
Gel box
Microwave
Water bath / heat block

Protocol/Procedure

Wear appropriate PPE and use standard practices for working with RNA to preserve sample integrity.

Preparation of 1X Running Buffer

1. Running buffer for N726-KIT:

1X Formaldehyde-Free RNA Gel Running Buffer (N726-KIT)	
Formaldehye-Free RNA Gel Running Buffer, 10X	100 mL
Deionized Water	900 mL
Total Volume	1000 mL

2. Running buffer for 1B1384-KIT:

1X Rapid RNA Gel Running Buffer (1B1384-KIT)	
Rapid RNA Gel Running Buffer, 10X	100 mL
Deionized Water	900 mL
Total Volume	1000 mL

Gel Preparation

1. Suspend agarose (1 – 2%) in 90 mL deionized water in a 250 mL conical flask.
2. In a microwave oven, heat the above mixture to a boil until the agarose has dissolved completely. USE CAUTION-MIXTURE IS EXTREMELY HOT!
3. Let solution cool to 60 – 70°C and then add 10 mL of Formaldehyde-Free RNA Gel Solution, 10X **OR** 10 mL of Rapid Formaldehyde-Free Gel Solution, 10X and mix thoroughly.
4. Pour the melted agarose into a horizontal gel casting unit and insert comb.
5. After the gel has solidified, remove the comb and submerge the gel in 1X Formaldehyde-Free RNA Gel Running Buffer **OR** 1X Rapid RNA Gel Running Buffer.
6. Add an equal volume of the Formaldehyde-Free RNA Gel Loading Buffer, 2X to each sample and mix thoroughly.
7. Heat denature samples for 10 minutes at 65°C.
8. Load samples onto gel and run at the recommended voltage, depending on which buffer/gel kit is used, until sufficient separation has occurred. **Note:** Calculate the voltage based on the measurement of the distance between the electrodes.

- (N726-KIT) 1X Formaldehyde-Free RNA Gel Running Buffer – run at 5 – 8 V/cm
- (1B1384-KIT) 1X Rapid Gel Running Buffer – run at 15 – 18 V/cm

9. The gel may be visualized immediately on a UV transilluminator. For optimal results use a SYBR® Green (green emission) filter for image capture.

Frequently Asked Questions

Questions	Answers
Why do I see smears of RNA or no RNA on my gel?	1. RNase contamination in samples 2. Smears may result from overloading, Load <30ug RNA 3. No RNA-not enough RNA loaded or impure RNA quantitated incorrectly. 4. No RNA-RNA diffusion out of gel. Do not let gel sit for extended periods after electrophoresis is complete. Image immediately. 5. RNA ran off gel, use shorter run time. 6. Insufficient staining.
Is a Formaldehyde Free or Rapid Formaldehyde Free RNA Gel Kit compatible with Northern blotting?	Yes, both kits are compatible with Northern blotting.
Why didn't my RNA leave the loading well?	1. Improper well formation, pour a new gel. 2. Overloaded RNA. Load <30ug RNA.

Directions for Use

For Technical Support

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