

10X GoldRunner™ Rapid Electrophoresis Buffer

A Time-Saving Agarose Gel Buffer For DNA Analysis

Catalog # GR01 Lot # EB17

Description: GoldRunner™ rapid electrophoresis buffer is a proprietary formulation of buffer designed for rapid DNA analysis using agarose gel. In theory, agarose gel analyses can be speeded up by running the gel under high voltage. However, running agarose gel in high voltage in traditional TAE or TBE buffer causes a tremendous increase in buffer temperature and current in very short time. The high amount of the heat and current built up in the process leads to the melting of the gel, DNA bands smearing, decrease of DNA bands resolution, fuse blowout and make the process a fire hazardous procedure. The unique formulation in GoldRunner™ rapid electrophoresis buffer allows the agarose gel analysis to be performed under high voltage at low temperature and low current. The time required by the traditional TAE or TBE buffer to complete an agarose gel electrophoresis is reduced by 50 to 75% when the gel is run in the GoldRunner™ rapid electrophoresis buffer. Best of all, the resolution of the DNA bands in the gel is similar to that in the TAE and TBE gels performed in low voltage.

Note: GoldRunner™ rapid electrophoresis buffer is NOT compatible with pre-made mini TAE or TBE gels.

Package Content: 1) 10X GoldRunner™ rapid electrophoresis buffer, 2) Warning sign, 3) Instruction

Storage: Room temperature.

Applications: Agarose gel electrophoresis for DNA analysis.

Required equipment and reagents:

- 1) Power supply that is rated to handle a minimal of 250 volts and 300 mA.
- 2) Horizontal agarose electrophoresis system.
- 3) Microwave oven.
- 4) High quality, molecular biology grade agarose.
- 5) DNA sample loading buffer.
- 6) High quality de-ionized water.

Caution: DO NOT USE tap water to dilute the 10X GoldRunner™ rapid electrophoresis buffer. Tap water increases the ion content of the buffer, decreases gel resolution, and makes the high voltage electrophoresis process fire-hazardous.

Directions of use:

Warning: The instructions described below involve the use of high voltage. Follow the directions with caution to prevent fatal electric shock.

- 1) Dilute the 10 X GoldRunner™ rapid electrophoresis buffer with high quality de-ionized water to 1X. For example, to make 1 liter of 1X buffer, mix 100 ml of 10 X GoldRunner™ rapid electrophoresis buffer with 900 ml of high quality de-ionized water.
- 2) Use the diluted 1X buffer to prepare agarose gel using standard gel preparation technique with the microwave oven, and to fill up the chamber of the horizontal agarose gel electrophoresis system (See the Frequently Asked Questions section (back page) for suggestions on preparing the optimal concentration of agarose gel for DNA analysis).
- 3) Submerge the gel in the electrophoresis chamber. Mix the DNA sample with DNA sample loading buffer and load the mixture into the well of the agarose gel. **Put the cover of the horizontal agarose gel electrophoresis system on the system for electric shock protection.**
- 4) Set the power supply to according to the following.
Mini-gel system: 250 – 300 volts, constant voltage setting with the current set to maximum.
Standard gel system: 200 – 250 volts, constant voltage setting with the current set to maximum
- 5) Post the supplied Warning Sign on the power supply and on the horizontal agarose gel electrophoresis system. Turn on the power supply. **DO NOT TOUCH the power supply, cables, and the horizontal agarose gel electrophoresis system during run to avoid fatal electric shock.**
- 6) Typical mini gel should be completed within 30 min. For best results, DO NOT run mini gel for more than 45 min.
Typical standard gel should be completed within 45 min. For best results, DO NOT run standard gel for more than 60 min.
- 7) Turn off the power supply, and remove the Warning Sign **before touching the cables and the horizontal agarose gel electrophoresis system to avoid fatal electric shock.**
- 8) Stain the agarose gel if needed. Place the gel on a UV box to visualize the DNA bands.

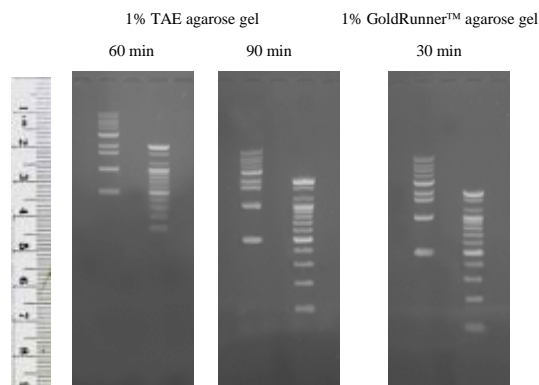


Figure: 1 kb DNA marker and 100 bp DNA marker were run on a 1% mini agarose gel prepared in TAE buffer (two gels on left), or GoldRunner™ rapid electrophoresis buffer (right). The TAE gel was performed at constant 80 volts and the GoldRunner™ gel was performed at constant 250 volts for the time indicated. The bands in the 1 kb marker lane are 10.2, 8, 6, 5, 4, 3, 2, 1.6, 1 and 0.5 kb. The bands in the 100 bp marker lane are 2000, 1600, 1200, 1000, 900, 800, 700, 600, 500, 400, 300, 200 and 100 bp.

This Product is for research use only.

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Frequently Asked Questions

Q: What is GoldRunner™ rapid electrophoresis buffer?

A: GoldRunner™ rapid electrophoresis buffer is a new generation of agarose gel electrophoresis buffer with an unique formulation for rapid gel analysis. It allows gel electrophoresis to be performed in high voltage without the problems (melting of the gel, DNA bands smiling, decrease of DNA bands resolution) caused by the high heat and high current associated with the traditional TAE and TBE buffer. An agarose gel electrophoresis performed in GoldRunner™ rapid electrophoresis buffer can be completed in 1/2 to 1/3 of the time required for a gel performed in the traditional TAE or TBE buffer. Best of all, there is no reduction in the resolution of DNA bands when the gel electrophoresis is performed in GoldRunner™ electrophoresis buffer under high voltage.

Q: How do I use GoldRunner™ rapidelectrophoresis buffer?

A: GoldRunner™ rapid electrophoresis buffer is formulated as a 10X concentrated solution. Dilute the 10X buffer to 1X with high quality deionized water. **DO NOT USE tap water to dilute the 10X GoldRunner™ rapid electrophoresis buffer. Tap water increases the ion content of the buffer, decreases gel resolution, and makes the high voltage electrophoresis process fire-hazardous.**

Q: Is GoldRunner™ rapid electrophoresis buffer compatible with pre-made mini TAE and TBE gels?

A: **GoldRunner™ rapid electrophoresis buffer is NOT compatible with pre-made mini TAE or TBE gels.**

Q: What percentage of agarose gel should I make for DNA alaysis?

A: Since the size of the horizontal agarose gel electrophoresis system varies from manufacture to manufacture, one can use the following agaorse gel analyses as a guild to determine the optimal agarose gel concentration for DNA analysis.

Q: How long should I run the agarose gel in GoldRunner™ rapid electrophoresis buffer?

A: Typical mini gel should be completed within 30 min. For best results, DO NOT run mini gel for more than 45 min. Typical standard gel should be completed within 45 min. For best results, DO NOT run standard gel for more than 60 min.

Since the size of the horizontal agarose gel electrophoresis system varies from manufacture to manufacture, one can use the following agaorse gel analyses as a guide to determine the optimal electrophoresis time for DNA analysis.

Guide for gel preparation and running time for GoldRunner™ rapid electrophoresis buffer

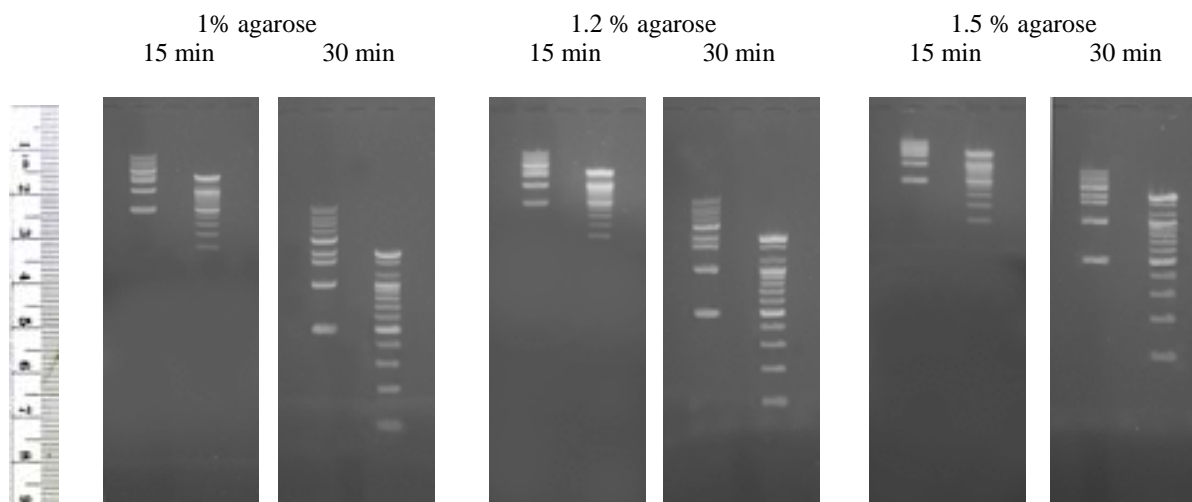


Figure: 1 kb DNA marker and 100 bp DNA marker were run on a 1%, 1.2% and 1.5% mini agarose gel prepared in GoldRunner™ rapid electrophoresis buffer for 15 and 30 min. as indicated. Electrophoresis was performed at constant 250 volts. The bands in the 1 kb marker lane are 10.2, 8, 6, 5, 4, 3, 2, 1.6, 1 and 0.5 kb. The bands in the 100 bp marker lane are 2000, 1600, 1200, 1000, 900, 800, 700, 600, 500, 400, 300, 200 and 100 bp.

Q: Can I reuse GoldRunner™ rapid electrophoresis buffer?

A: For best results, use fresh buffer. Used 1X GoldRunner™ rapid electrophoresis buffer in the electrophoresis chamber can be reused one more time in the same day without significantly affecting the resolution of the second gel. We recommend one should gently mix the used buffer in the chamber before use for the best results. If the used buffer is not used in the same day, transfer it to a bottle with a tight cap to prevent the evaporation of water from the buffer. Loss of water in the buffer can affect the effectiveness of the buffer.