# Helixyte™ Green Nucleic Acid Gel Stain *10,000X DMSO Solution*

Catalog number: 17590, 17604
Unit size: 1 ml, 100 ul

| Component | Storage | Amount (Cat No. 17590) | Amount (Cat No. 17604) |
|---|---|---|---|
| Helixyte™ Green Nucleic Acid Gel Stain *10,000X DMSO Solution* | Freeze (< -15 °C), Minimize light exposure | 1 vial (1 mL) | 1 vial (100 uL) |

## OVERVIEW

Helixyte™ Green is manufactured by AAT Bioquest, and it has the same chemical structure of SYBR® Green (SYBR® is the trademark of ThermoFisher). Helixyte™ Green is an excellent nucleic acid gel stain. It has the same spectral properties to those of SYBR® Green, thus a great replacement to SYBR® Green (SYBR® Green is the trademark of ThermoFisher). It is one of the most sensitive stains available for detecting double-stranded DNA (dsDNA) in agarose and polyacrylamide gels. Helixyte™ Green has much greater sensitivity for dsDNA, thus especially useful for assays where the presence of contaminating RNA or ssDNA might obscure results. Helixyte™ Green stain is ideal for use with laser scanners with the same instrument settings of SYBR Green. Helixyte™ Green is much more sensitive than ethidium bromide for DNA in agarose gels. The gels soaked in diluted Helixyte™ Green stain can be visualized without desalting. It is compatible with UV transilluminators, gel documentation systems, and laser scanners.

## AT A GLANCE

**Spectral Properties of Helixyte™ Green Nucleic Acid Gel Stain**

Excitation/Emission: 497/521 nm when bound to DNA

**Important Note**

Helixyte™ Green nucleic acid gel stain is significantly less mutagenic than ethidium bromide. Nevertheless, we must caution that there is currently no available data on the mutagenicity or toxicity of Helixyte™ Green stain in humans. It is prudent to treat this reagent as a potential mutagen and handle it with appropriate care, especially considering its binding affinity to nucleic acids. Additionally, ensure proper disposal of the stain in compliance with local regulations.

We have observed that the greatest sensitivity is attained through post-staining, which eliminates the risk of dye interference with DNA migration. While the precast protocol is more convenient, some DNA samples may experience migration issues. Hence, it is strongly advised to limit the gel running time to no more than 2 hours. The provided protocols are recommendations, and conducting comparisons may be necessary to determine which one better meets your specific needs.

## PREPARATION OF WORKING SOLUTION

**Helixyte™ Green Working Wolution (1X)**

1. Prepare a 1X Helixyte™ Green working solution by diluting the 10,000X stock reagent with a pH 7.5 - 8 buffer, such as TAE, TBE, or TE. Buffers with a pH of 8.0 are preferred.

   **Note:** Staining solutions prepared in water are less stable than those prepared in buffer and must be used within 24 hours to ensure maximal staining sensitivity.

   **Note:** In addition, staining solutions prepared in buffers with pH below 7.5 or above 8.0 are less stable and show reduced staining efficacy.

## SAMPLE EXPERIMENTAL PROTOCOL

**Post-Staining Protocol**

1. Run gels based on your standard protocol.

2. Place the gel in a suitable polypropylene container. Gently add a sufficient amount of the 1X Helixyte™ Green working solution to submerge the gel.

   **Note:** Do not use a glass container, as it will adsorb much of the dye in the staining solution.

3. Agitate the gel gently at room temperature for ~30 minutes, protected from the light.

   **Note:** The staining solution can be stored in the dark (preferably refrigerated) for a week and reused up to 2 - 3 times.

4. Image the stained gel with a 254 nm transilluminator or a laser-based gel scanner using a long path green filter, such as a SYBR® filter or GelStar® filter.

**Pre-Casting Protocol**

1. Prepare agarose gel solution using your standard protocol.

2. Add 1X Helixyte™ Green working solution to the gel and mix thoroughly.

3. Run gels based on your standard protocol.

4. Image the stained gel with a 254 nm transilluminator or a laser-based gel scanner using a long path green filter, such as a SYBR® filter or GelStar® filter.

**DNA-Staining Before Electrophoresis**

1. Incubate DNA with a 1:3000 to 1:10,000 dilution of the dye (in TE, TBE, or TAE) for at least 15 minutes prior to electrophoresis.

2. Run gels based on your standard protocol.

3. Image the stained gel with a 254 nm transilluminator, or a laser-based gel scanner using a long path green filter such as a SYBR® filter or GelStar® filter.

## EXAMPLE DATA ANALYSIS AND FIGURES

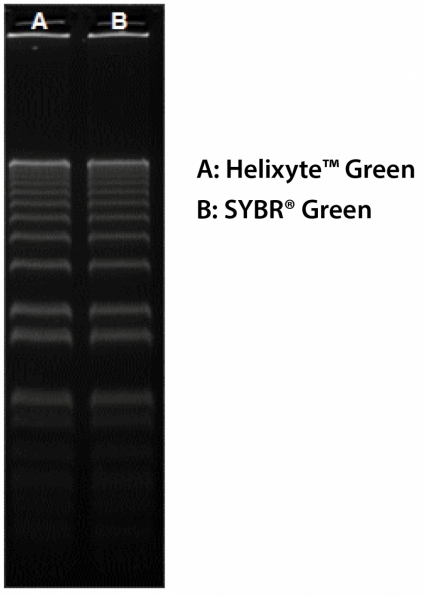


**Figure 1.** 160 ng of 1 Kb Plus DNA Ladder (ThermoFisher 10787018) in 0.9% agarose/TBE electrophoresis gel were stained with Helixyte™ Green and SYBR® Green and imaged with 254-nm UV transilluminator using UVP Bioimaging System.

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