

## 20 Base Pair DNA Ladder

Catalog # L-100

Lot: 2

Quantity Supplied: 500 ul at 4 ul per loading (sufficient for 125 loadings)

Storage Buffer: 10 mM Tris-HCl, 1 mM EDTA, pH 8.0 (TE buffer)

Store at -20 °C or below.

Repeated freeze-thaw cycles have no effect on this product. Vortex after thawing.

**Description:** This ladder consists of 25+ blunt end DNA bands at exactly 20 bp to 500 bp in 20 bp increments. A high intensity 100 bp band facilitates band identification. G+C content of all bands is 50%.

**Recommended Use:** For agarose gel electrophoresis, make a Working Solution of the ladder in the tube labeled "Working Solution" as follows:

50 ul 5X sample loading buffer

100 ul TE buffer

100 ul ladder stock solution

A common 5X sample loading buffer is 40 mM Tris-OAc, 1 mM EDTA, pH 8.0, 0.05% bromophenol blue, 50% glycerol. Load 10 ul of the Working Solution for 3 mm width wells on the gel. (This is equivalent to loading 4 ul of the Stock Solution on the gel). Bands can be visible by ethidium bromide staining. Best results are obtained by filling wells completely. Alternatively, the working solution formulation may be modified by using half the ladder stock solution and using a load volume of 20 ul. The Working Solution may be stored at 4 °C for several months. For long term storage, store the Working Solution at -20 °C or below. Store the Stock Solution at -20 °C or below.

### Tips for Best Results:

(1) For best resolution of 20 bp to 400 bp, use a high sieving agarose (such as 3.0% metaphor agarose). Bands above 400 bp are visible, but may require a longer run time to resolve and a slightly more concentrated working solution to see well.

(2) Stain the gel thoroughly with ethidium bromide, otherwise the bands may be difficult to see.

(3) The 20 bp ladder can also be used in polyacrylamide gel electrophoresis (PAGE). PAGE separates by size and by shape of the DNA. Therefore, two sequences of the same size may migrate differently in PAGE. The 20 bp ladder can be used as a reference point in PAGE. Use 2 ul of Stock Solution per loading, diluted in a PAGE loading buffer. Bands can be seen by ethidium bromide staining. The stock solution should provide 250 loadings for PAGE.

(4) To facilitate identification of bands above 200 bp, it is helpful to run a 100 bp DNA ladder in an adjacent lane (catalog L-101).

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3% metaphor agarose gel showing bands from 20 bp to 500 bp in 20 bp increments. The bottom band is 20 bp, and the intense band is 100 bp.