

For life science research only.  
Not for use in diagnostic procedures.



# DNA Molecular Weight Marker II

 **Version: 07**  
Content Version: July 2021

Fragment sizes: 0.12 to 23.1 kbp  
 $\lambda$ DNA  $\times$  Hind III digested

**Cat. No. 10 236 250 001**    50  $\mu$ g  
   200  $\mu$ l  
   50 gel lanes

**Store the product at  $-15$  to  $-25^{\circ}\text{C}$ .**

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# 1. General Information

## 1.1. Contents

Vial / bottle	Label	Function / description	Content
1	DNA Molecular Weight Marker II	<ul style="list-style-type: none"> <li>Ready-to-use solution in 10 mM Tris-HCl, 1 mM EDTA, pH 8.0, (250 µg/ml).</li> <li>50 µg corresponds to 1 <math>A_{260}</math> unit.</li> </ul>	1 Vial, 50 µg (200 µl)

## 1.2. Storage and Stability

### Storage Conditions (Product)

When stored at –15 to –25°C, the product is stable through the expiry date printed on the label.

Vial / bottle	Label	Storage
1	DNA Molecular Weight Marker II	Store at –15 to –25°C. After thawing, store at +2 to +8°C. <b>⚠ Avoid repeated freezing and thawing.</b>

## 1.3. Additional Equipment and Reagent required

### For end-labeling reactions

- Digoxigenin-11-ddUTP\*
- Terminal Transferase\*, or
- Radioactive dideoxynucleotides

## 1.4. Application

Use DNA Molecular Weight Marker II as a size standard for DNA in agarose gels.

- i** *The marker provides accurate sizing of fragments over a broad range of sizes.*
- The fragments have 5'-protruding ends and can be labeled with radioactive nucleotides, such as [<sup>32</sup>P]-dTTP or [<sup>32</sup>P]-dGTP by standard filling-in reactions.
- End-labeling reactions can be performed with a radioactive or nonradioactive dideoxynucleotide, such as Digoxigenin-11-ddUTP\* and Terminal Transferase\*.

# 2. How to Use this Product

## 2.1. Before you Begin

### General Considerations

#### Size distribution

Fragment mixture prepared by cleavage of λDNA with restriction endonuclease Hind III. The mixture contains 8 double-stranded DNA fragments with the following base pair lengths (1 base pair = 660 daltons).

- i** *Fragment lengths are derived from computer analysis of the λDNA sequence.*

bp							
23,130	9,416	6,557	4,361	2,322	2,027	564	125

### 3. Results

#### Improved visualization of the bands

The 23,130 and 4,361 bp fragments contain the cos-ends of lambda. These bands are visible after heating the marker at +65°C for 10 minutes, and quickly chilling on ice, see the **Important Note**.

Under standard conditions using ethidium bromide, the 125 bp fragment is visible only on over-loaded agarose gels. For higher resolution, use 0.35 µg per gel well in a 0.6% (or lower) gel with 4 mm thickness. The fragment of 564 base pairs will then be easily visible.

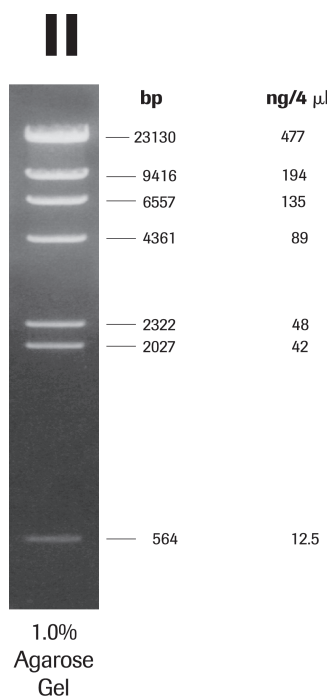
**⚠ Fragments containing the 12 base cos-sites of lambda may anneal upon storage. This leads to a gel pattern where one band is of lower intensity than expected (or absent completely) and a larger fragment has an increased intensity. Denaturation of the cos-sites can be performed immediately before loading the gel by heating at +65°C for 10 minutes and quick-chilling on ice.**

## 3. Results

### Typical analysis

The DNA fragment mixture shows the typical pattern of 7 bands in agarose gel electrophoresis, see Figure 1.

- After gel electrophoresis of 1 µg of the fragment mixture in a 1% Agarose MP\* gel, 7 bands are visible.
- The smallest fragment resulting from the Hind III digestion (125 base pair) cannot be detected on the gel due to its small size.
- All fragments are present in equimolar amounts, therefore this smallest band will only be visible on over loaded gels when stained with ethidium bromide.











**Fig. 1:** Separation of 1 µg DNA Molecular Weight Marker II on a 1% Agarose MP gel, stained with ethidium bromide.

## 4. Supplementary Information

### 4.1. Conventions

To make information consistent and easier to read, the following text conventions and symbols are used in this document to highlight important information:

Text convention and symbols	
 Information Note: Additional information about the current topic or procedure.	
<b> Important Note: Information critical to the success of the current procedure or use of the product.</b>	
   etc.	Stages in a process that usually occur in the order listed.
   etc.	Steps in a procedure that must be performed in the order listed.
* (Asterisk)	The Asterisk denotes a product available from Roche Diagnostics.

### 4.2. Changes to previous version

Layout changes.  
Editorial changes.

### 4.3. Ordering Information

Product	Pack Size	Cat. No.
Reagents, kits		
Terminal Transferase	8,000 U, 400 U/μl, 20 tailing or 3'-end labeling reactions (400 U per reaction)	03 333 566 001
	24,000 U, 400 U/μl, 60 tailing or 3'-end labeling reactions (400 U per reaction)	03 333 574 001
Digoxigenin-11-ddUTP	25 nmol, 25 μl, 1 mM	11 363 905 910

## 4. Supplementary Information

### 4.4. Trademarks

All product names and trademarks are the property of their respective owners.

### 4.5. License Disclaimer

For patent license limitations for individual products please refer to:  
**List of biochemical reagent products.**

### 4.6. Regulatory Disclaimer

For life science research only. Not for use in diagnostic procedures.

### 4.7. Safety Data Sheet

Please follow the instructions in the Safety Data Sheet (SDS).

### 4.8. Contact and Support

To ask questions, solve problems, suggest enhancements or report new applications, please visit our **Online Technical Support Site.**

To call, write, fax, or email us, visit **sigma-aldrich.com**, and select your home country. Country-specific contact information will be displayed.

