Nucleic Acid Columns

Ion Exchange Chromatography

The separation of synthetic oligonucleotides of defined length and sequence, and the separation of DNA restriction fragments are required for modern genetic engineering and in molecular biology. The ion exchange columns, HYDROCELL NS 1500 was developed specifically for the purification of PCR products, short nucleic acids from two to forty or more nucleotide residues and DNA restriction fragments of up to 1000 base pairs. NS 1500 is produced from 10 µm of highly cross-linked PS-DVB beads with pore diameter of 500 Å.pBR322 and pUC18 / Hae
III digest DNA markers were used as model samples of DNA restriction fragments. At room temperature, these fragments were efficiently resolved on a HYDROCELL nucleic acid column.

The major advantages of HYDROCELL Nucleic Acid Columns are:

High resolution and sensitivity:

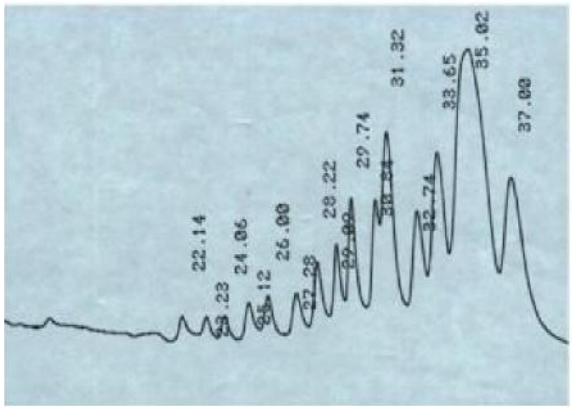
- Stability in buffers from pH 1 to 14 allows denaturing of DNA
- Temperature limit of 80° C allows denaturing of DNA
- Pressure limit up to 4000 psi allows fast equilibration / clean-up
- Low back pressure for easy scale-up

Scroll Down for Chromatograms

Hydrocell NS 1500

DNA Fragments

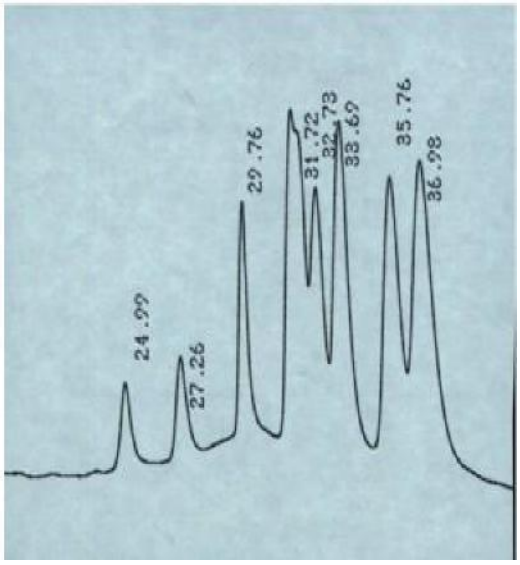
Column: 50 x 2.1 mm
Mobile Phase:
A: 25 mM CHES, pH 8.0
B: Eluent A + 1.2 M Ammonium Sulfate, pH 8.0
Gradient:
Linear 10-50% B in 40 minutes
Flow Rate: 0.25 mL/min
Detection: UV 260 nm
Sample: pBR322 DNA Hae III Digest
Injection: 5 µL



Hydrocell NS 1500

DNA Fragments

Column: 150 x 2.1 mm
Mobile Phase:
A: 25 mM CHES, pH 8.0
B: Eluent A + 1.2 M Ammonium Sulfate, pH 8.0
Gradient:
Linear 20-100% B in 60 minutes
Flow Rate: 0.25 mL/min
Detection: UV 260 nm
Sample: pUC18 DNA Hae III Digest
Injection: 5 µL



Excellent separation was obtained in 15 minutes when the oligonucleotide standard, oligothymidylic acid d(pT) 12-18 mer, was chromatographed using the nucleic acid column. The larger oligonucleotide fragments may be purified by adjustment of elution conditions. They require higher concentrations of salt and longer times for elution.

Hydrocell NS 1500

Oligonucleotides

Column: 7.8 x 75 mm
Mobile Phase:
A: 25 mM CHES, pH 8.0
B: Eluent A + 1.2 M Ammonium Sulfate, pH 8.0
Gradient:
Linear 10-50% B in 40 minutes
Flow Rate: 2.5 mL/min
Detection: UV 260 nm
Sample: Oligothymidylic Acid d(pT) 12-18 mer, 5 units in 1 mL of eluent A
Injection: 30 µL