

Clarity® BioSolutions for Synthetic DNA/RNA

Clarity Oligo-WAX™ LC Columns

High Purity, High Loadability Preparative Ion-Exchange Purification

- Excellent efficiency column results in > 90 % purities due to good fractionation of closely eluting compounds
- High loading capacity due to very high density ligand
- Increase productivity by running at higher flow rates and pressures
- Columns amenable to HPLC and FPLC systems

Clarity Oligo-WAX LC columns were designed with the synthetic DNA/RNA preparative chromatographer in mind. Oligo-WAX is an advantageous combination of purity, capacity, mechanical strength, cost, and efficiency.

Tailored for Preparative Purification

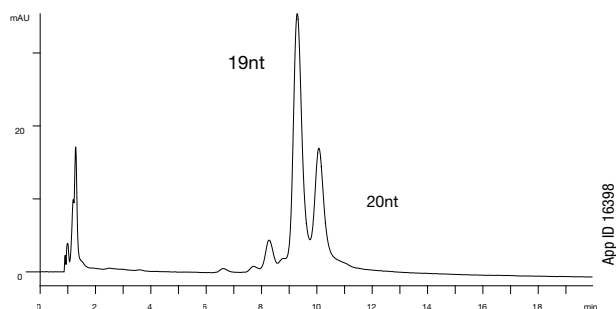
The majority of synthetic oligo preparative purifications are performed using a strong anion exchanger bonded to a 10 or 15 µm polymer backbone. Polymer backbones are amenable to clean in place protocols and strong anion exchangers have a wide effective pH range. To date, these technologies have been satisfactory for prep purifications and will continue to be. However, due to the fact that Clarity Oligo-WAX is a cross-linked weak anion exchanger bonded to a 10 µm high purity silica, this technology offers advantages such as high loading capacity, excellent peak efficiency, and a robust backbone that aren't available with typically used purification products.

Purify Failure Sequences and Contaminants from Target Sequence

Ion-exchange is an excellent separation mode for purifying contaminants and failure sequences from target sequences. Clarity Oligo-WAX, due to its increased efficiency compared to other ion-exchange columns, has the ability to recognize minute charge differences in nucleotide sequences such as failure sequences or base substitutions.

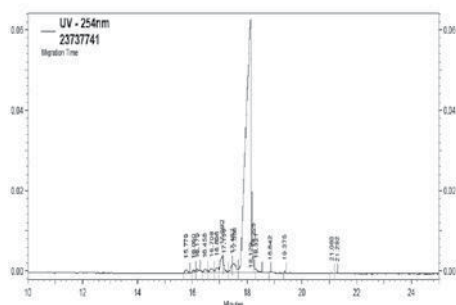
DNA Purification of N-1 Sequence from Target N Sequence

Column: Clarity 10 µm Oligo-WAX
Dimensions: 150 x 4.6 mm
Part No.: 00F-4451-E0
Mobile Phase: A: Water
B: Acetonitrile
C: 100 mM Tris, pH 8
D: 2 M Sodium chloride
Gradient: A/B/C/D (70:10:20:0) to (10:10:20:60) in 20 min
Flow Rate: 2.2 mL/min
Detection: UV-Vis Abs.-Diode Array (ambient)
Sample: Depurinated A & G and 20mer DNA



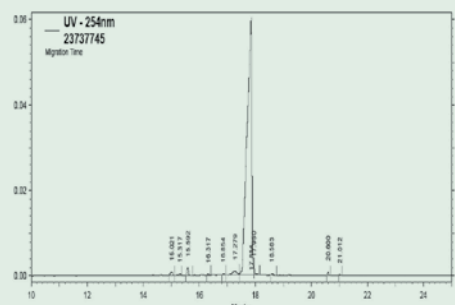
CE Purity Analysis of Ion-Exchange Purification

GE Healthcare SOURCE™ 15Q
150 x 10mm (self-packed)



- Final Purity = 88.8 %, N-1 = 2.0 % • Final amount = 205.9 OD's
- Recovery of full-length product = 28.9 % • Conductivity = 200 µS/cm

Clarity Oligo-WAX 10 µm
150 x 10mm (pre-packed)



- Final Purity = 95.1 %, N-1 = 1.3 % • Final amount = 188.9 OD's
- Recovery of full-length product = 28.4 % • Conductivity = 151 µS/cm

Two purification runs were performed on each column with fractional QC being taken after each run. Passing fractions from the two purification runs were combined into one pooled lot for each column. That pooled lot was then divided equally and run through a Clarity desalting tube. Final OD's and QC were taken after desalting, including ESI, CE, and conductivity. The purity and resolution of Clarity Oligo-WAX was considerably better than SOURCE 15Q. Though SOURCE had a slightly higher recovery of full length oligo, it was not a wide enough margin to offset the purity advantage.

Data courtesy of a large, Iowa-based oligo manufacturer.
Comparative separations may not be representative of all applications.