DuPont Water Solutions
Life Sciences and Specialties

DuPont™ AmberChrom™ TQ1 Chromatography Resin

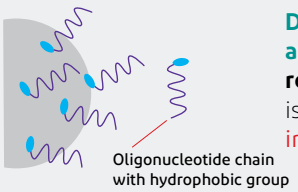
Anion Exchange Resin for Oligonucleotide and Peptide Purification and Polishing

Advancing Drug Manufacturing

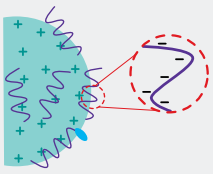
As a global market leader in polymeric absorbents and ion exchange resins, DuPont delivers an extensive array of advanced, science-driven solutions and products designed to tackle intricate drug separation and purification processes of biomolecules, small molecules, vaccines, and more. DuPont is dedicated to enhancing the production of biopharmaceuticals to support the growing development of emerging modalities including oligonucleotide and peptide therapeutics. With extensive scientific expertise in preparative chromatography techniques, DuPont products can help solve contemporary drug purification challenges.

Purification of Biotherapeutics

The downstream processing and purification of biotherapeutics involves multiple steps aimed at achieving an ideal balance between optimal purity and maximum yield of the drug substance. DuPont offers a wide range of preparative-scale resins for the purification of various biomolecules, including the well-established DuPont™ AmberChrom™ XT and CG chromatography resins, optimized for the purification of oligonucleotides and peptides through reverse phase chromatography. Additionally, the introduction of agarose-based DuPont™ AmberChrom™ TQ1 chromatography resin provides a solution for anion exchange chromatography, enabling more versatility for drug developers. This resin can be utilized alongside DuPont™ AmberChrom™ XT and CG chromatography resins, or used independently to purify diverse oligonucleotide feeds. DuPont™ AmberChrom™ TQ1 chromatography resin is also applicable in initial purification processes to prepare peptide feeds, as well as for other anionic biomolecules and anion exchange separations.



DuPont™ AmberChrom™ XT and CG chromatography resins' reverse phase chromatography is driven by hydrophobic interactions



DuPont™ AmberChrom™ TQ1 chromatography resin's hydrophilic ion exchange chromatography is driven by ionic interactions

DuPont™ AmberChrom™ TQ1 chromatography resin offers increased loading capacity, higher throughput, and less pressure build-up during purification.

High resolution separation
and polishing of oligonucleotide crude feeds, peptides, and proteins

Higher loading capacity
for oligonucleotides and small anionic biomolecules

Increased yield and purity
of peptides and DMT-Off and DMT-On oligonucleotides

Lower pressure build-up
at high flow rates

Typical Resin Performance Values

Property	DuPont™ AmberChrom™ TQ1 Resin
Average Particle Size (D50)	50 µm
pH Stability	2 – 12 (working pH) up to 14 (cleaning)
Temperature	4 – 30 °C
Functional Group	Quaternary amine
20-mer Antisense Oligonucleotide Dynamic Binding Capacity*	> 45 mg/mL of resin for DMT-On oligonucleotide > 55 mg/mL of resin for DMT-Off oligonucleotide
Insulin Dynamic Binding Capacity**	> 90 mg/mL of resin

* Dynamic binding capacity for oligonucleotides was determined in 4 mL columns at 4 min residence time. Dynamic binding capacity is determined as 1% breakthrough for oligonucleotides in basic conditions.
**Dynamic binding capacity is determined as 1% breakthrough for insulin in neutral conditions.

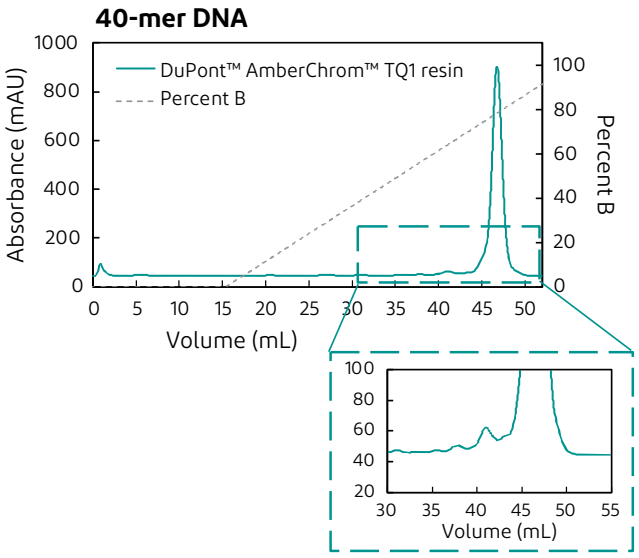


Figure 1: Chromatogram showing the resolution of a low-load injection of a 40-mer DNA sample

DuPont Water Solutions
Life Sciences and Specialties

As a global market leader in adsorbents and ion exchange resins with over 80 years of experience, our solutions can accelerate and enhance the discovery and production of small molecule synthetics, oligonucleotides, and peptides, as well as diagnostics, by enabling complicated separations that help companies achieve their vision to manage and treat diseases.

Contact us for product samples and technical support.

https://www.dupont.com/water/contact-us.html

www.dupontwatersolutions.com/life-sciences

Picture credits: iStock, DuPont Water Solutions

dupont.com/water

Form No. Br-45-D04890-en B28
April 2025