

# Thermo Scientific Dionex Bio-IC Column Selection Guide

## Dionex CarboPac And Dionex AminoPac Columns

Column	Format (Capacity µeq/col)	Recommendations	Official Methods/Target Applications	Application Documents
Thermo Scientific™ Dionex™ CarboPac™ PA200	3 × 250 mm (35 µeq)	High resolution separations of charged and neutral oligosaccharides.	Separation of neutral and sialylated N-linked oligosaccharides from glycoproteins. Plant-derived oligosaccharides (e.g. maltodextrins, xylans, etc.).	AN 1050: Protein Glycosylation in Limited-Quantity Samples AN 1013: Polysialic Acid Analysis AN 215: Asparagine-Linked Oligosaccharides from Polyclonal IgG AU 150: Plant-Derived Neutral Oligo- and Polysaccharides AN 67: Determination of Plant-Derived Neutral Oligo- and Polysaccharides AN 1091: Uronic Acids and Wood Sugars in Wood Based Hydrolysates AN 202: HPAE-PAD Analysis of Mannose-6-Phosphate
Dionex CarboPac PA20	3 × 150 mm (65 µeq) 0.4 × 150 mm (1.16 µeq)	High-resolution separations of mono- and disaccharides with optimized resolution of glucosamine/galactose and glucose/mannose peak pairs. The capillary format requires high pressure IC for fastest runs.	USP L Designation – L69 Glycoprotein monosaccharides, sialic acids.	AN 253: Sialic Acids in Infant Formula TN 40: Glycoprotein Monosaccharide Analysis AN 1050: Protein Glycosylation in Limited-Quantity Samples AU 180: Sialic Acids in Glycoprotein Hydrolyzates by HPAE-PAD AN 1091: Uronic Acids and Wood Sugars in Wood-Based Hydrolysates AN 248: Lactose in Lactose-Free Milk Products by HPAE-PAD AN 202: HPAE-PAD Analysis of Mannose-6-Phosphate AN 233: Galactosamine Containing Organic Impurities in Heparin by HPAE-PAD AN 197: Glucosamine in Dietary Supplements Using HPAE-PAD AU 151: Sucralose in Reduced-Carbohydrate Colas Using HPAE-PAD AN 159: Determination of Sucralose Using HPAE-PAD AU 164: Glucosamine in Chondroitin Sulfate-Containing Dietary Supplements Using HPAE-PAD
	3 × 30 mm (13 µeq)	Fast separation of N-acetyl- and N-glycolylneuraminic acids.	Sialic acid	AU 181: Rapid Screening of Sialic Acids in Glycoproteins
Dionex CarboPac MA1	4 × 250 mm (1450 µeq)	High-capacity, strong anion-exchange column for separation of small reduced sugars (sugar alcohols).	USP L Designation – L47 First Action AOAC Method 2011.18 - Myo-inositol (free and bound as phosphatidylinositol) Reduced mono and disaccharides in commercial sweeteners and other food products and reduced monosaccharides from glycoproteins.	AN 267: Analysis of Amino Glycoside Antibiotics AN 246: Ethylene Glycol and Diethylene Glycol in a Sorbitol Solution AN 122: Carbohydrates, Alcohols, and Glycols in Fermentation Broths AN 117: Quantification of Carbohydrates and Glycols in Pharmaceuticals AN 87: Sugar Alcohols in Confections and Fruit Juices by HPAE-PAD
Dionex CarboPac SA10	4 × 250 mm (290 µeq) 2 × 250 mm (73 µeq)	Fast and high capacity separation of mono- and disaccharides in biofuels, foods, and beverages.	Fast analysis of monosaccharides and disaccharides in various matrices.	AN 282: Biofuel Sugars by HPAE-PAD AN 280: Carbohydrates in Coffee AU 192: Carbohydrates in Biofuel Samples



Currently recommended columns.



100% Solvent compatible with common organic solvents.

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Dionex CarboPac SA10-4 $\mu\text{m}$	4 $\times$ 250 mm (290 $\mu\text{eq}$ ) 2 $\times$ 250 mm (73 $\mu\text{eq}$ )	High resolution fast and high capacity separation of mono- and disaccharides in biofuels, foods, and beverages.	High resolution fast analysis of monosaccharides and disaccharides in various matrices.	AN 1089: Carbohydrates in Acid wood Hydrolysates TN 146: Lactose and Lactulose in Milk Products
Thermo Scientific™ Dionex™ BorateTrap™ Column	4 $\times$ 50 mm	Highly recommended for optimal performance during carbohydrate analysis to remove borate contamination from eluents.	Eliminates peak tailing for mannose, fructose, and reduced monosaccharides, resulting from borate contamination in the eluent.	
Thermo Scientific™ Dionex™ AminoTrap™ Column	4 $\times$ 50 mm 3 $\times$ 30 mm 2 $\times$ 50 mm 0.4 $\times$ 35 mm	An in-line pretreatment column designed to retain amino acids present in carbohydrate samples.	Column optimized to delay the elution of amino acids and small peptides in glycoprotein hydrolysates.	TN 40: Glycoprotein Monosaccharide Analysis TN 71: Eluent Preparation for High-Performance Anion-Exchange TN 133: HPAE-PAD Peak Area Response of Glycoprotein Oligosaccharides
Thermo Scientific™ Dionex™ AminoPac™ PA10	4 $\times$ 250 mm (240 $\mu\text{eq}$ ) 2 $\times$ 250 mm (60 $\mu\text{eq}$ ) 9 $\times$ 250 mm 22 $\times$ 250 mm	Hydrophobic, polymeric, pellicular, anion-exchange resin for the separation of carbohydrates and amino acids. The capillary format requires high pressure IC for fastest runs.	Analysis of free amino acids, vitamins, amino sugars, carbohydrates, phosphorylated amino acids, and common oxidation products of sulfur-containing amino acids.	AN 179: Carbohydrate and Amino Acid Analysis AN 150: Amino Acids in Cell Cultures and Fermentation Broths AN 142: Tryptophan Using AAA-Direct TN 55: Screening of Matrices and Matrix Ingredients for AAA-Direct AN 130: Hydroxylysine-Containing Peptide Using AAA-Direct TN 50: Amino Acid Content of Peptides by AAA-Direct
Thermo Scientific Dionex Carbohydrate Removal Cartridge (CRC)	2 $\times$ 15 mm	In-line sample pretreatment cartridge for removal of carbohydrates from amino acid samples.	The Dionex CRC cartridge is an in-line pretreatment cartridge packed with cation-exchange resin to bind amino acids while carbohydrates go to waste.	


 Currently recommended columns.

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Dionex CarboPac PA100	4 × 250 mm (90 µeq) 2 × 250 mm (23 µeq) 9 × 250 mm 22 × 250 mm	Separations of oligosaccharides released from glycoproteins.	Separation of closely related oligosaccharides (isomers) and neutral and charged oligosaccharides.	AN 1070: Inositol Phosphates in Dried Distillers Grains with Solubles AN 105: Glycosylation Analysis of Human Serum Transferrin Glycoforms TN 42: Glycoprotein Oligosaccharide Analysis Using High-Performance Anion-Exchange Chromatography AN 67: Determination of Plant-Derived Neutral Oligo- and Polysaccharides AN 46: Ion Chromatography: A Versatile Technique for the Analysis of Beer
Dionex CarboPac PA10	4 × 250 mm (100 µeq) 2 × 250 mm (25 µeq) 0.4 × 250 mm (1 µeq) 9 × 250 mm	Separation of amino, neutral, and acidic monosaccharides. The capillary format requires high pressure IC for fastest runs.	USP L Designation – L46 Analysis of mono- and disaccharides in foods, drugs, and plants, and separates sialic acids with the addition of sodium acetate to the eluent.	AN 117: Carbohydrates and Glycols in Pharmaceuticals TN 41: Sialic Acids Using HPAE-PAD AU 141: N-Acetylneuraminic Acid and N-Glycolylneuraminic Acid Peak Area Responses TN 53: Glycoprotein Monosaccharide Composition by HPAE-PAD Using On-Line Electrolytically Generated Eluents
Dionex CarboPac PA1	4 × 250 mm (100 µeq) 2 × 250 mm (25 µeq) 9 × 250 mm 22 × 250 mm	Rugged all-purpose column for determining monosaccharides, disaccharides and oligosaccharides.	AOAC Method 995.13 - Carbohydrates in Soluble Coffee AOAC Method 996.04 - Sugars in Molasses Method 997.08 - Fructans in Food and Food Products AOAC Method 2000.11 - Polydextrose AOAC Method 2000.17 - Low-Level Glucose and Fructose in Raw and Refined Sugar AOAC Method 2001.02 - Transgalacto-oligosaccharides First Action AOAC Method 2011.18 - Myo-inositol (free and bound as phosphatidylinositol) USP L Designation – L46 Anion-exchange column for the separation of mono-, disaccharides, oligosaccharides, and aminoglycosides.	AN 186: Paromomycin by HPAE-PAD AN 66: Neomycin B and Impurities by HPAE-PAD AN 147: Polydextrose in Foods by AOAC Method 2000.11 AN 92: Sugars in Molasses by HPAE-PAD AN 82: Analysis of Fruit Juice Adulterated with Medium Invert Sugar from Beets AU 167: Tobramycin in Crude and In-Process Production Samples During Manufacturing Using HPAE-PAD AN 155: Trans-Galactooligosaccharides in Food by AOAC Method 2001.02 AN 61: Determination of Tobramycin and Impurities Using HPAE-PAD
Dionex AminoPac PA1	4 × 250 mm (100 µeq)	High-speed, pellicular, strong, anion-exchange column for the separation of phosphorylated, acid labile and strongly acidic amino acids.	Acidic and acid-labile amino acids and for amino acid pairs not completely resolved by cation-exchange chromatography.	

 Columns currently not recommended due to the availability of better performing columns. Columns are sold to accommodate customers using them in validated standard operating procedures.

 100% Solvent compatible with common organic solvents.

 Up to 90% compatible with common HPLC columns.

 2-5% compatible with common HPLC columns.