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Thermo Scientific Dionex Bio-IC Column Selection Guide

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Dionex CarboPac and Dionex AminoPac Columns


Column	Part Number - Format Capacity (µeq/column)	Recommendations	Official Method/ Target Applications	Application Notes
Thermo Scientific™ Dionex™ CarboPac™ PA1 Columns for Dual EGC mode on the Thermo Scientific™ Dionex™ ICS-6000 HPIC™ system	303272 – 1 × 250 mm (6.25 µeq) 303273 – 1 × 50 mm (1.25 µeq)	Columns for predictable, high-resolution, isocratic and gradient separation of monosaccharides and disaccharides using the Dual EGC mode	Predictable, high-resolution, separation of monosaccharide and disaccharides using electrolytically generated potassium methanesulfonate and potassium hydroxide	AN73896 : Carbohydrate analysis of agave syrup using HPAE-PAD in dual eluent generation cartridge mode
Thermo Scientific™ Dionex™ CarboPac™ PA20 Columns for Dual EGC mode on the Thermo Scientific™ Dionex™ ICS-6000 HPIC™ system	303369 – 1 × 250 mm (7.2 µeq) 303370 – 1 × 50 mm (1.4 µeq)	Columns for predictable, high-resolution, isocratic and gradient separation of monosaccharides, disaccharides and sialic acids using the Dual EGC mode	Predictable, high-resolution, separation of monosaccharide, disaccharides and sialic acids using electrolytically generated potassium methanesulfonate and potassium hydroxide	AN73986 : Determination of Trans-Galactooligosaccharides in Foods using HPAE-PAD in dual eluent generation cartridge mode
Thermo Scientific™ Dionex™ CarboPac™ PA300-4µm Columns	303346- 2x250 mm (85 µeq) 303347- 2x 50mm (1.3 µeq)	Columns for high efficiency, high resolution analysis of complex, heterogeneous oligosaccharides in biological and food samples	Accurate, high efficiency and high-resolution separations of charged and neutral glycans in complex heterogeneous biological and food samples	AN71993 : Profiling Galactosyloligosaccharide-Containing Samples by High-Performance Anion-Exchange Chromatography with Pulsed Amperometric Detection (HPAE-PAD)
Thermo Scientific™ Dionex™ CarboPac™ PA200 Columns for Dual EGC mode on the Thermo Scientific™ Dionex™ ICS-6000 HPIC™ system	302861 – 1 × 250 mm (4 µeq) 302863 – 0.4 × 250 mm (0.64 µeq) 302862 – 1 × 50 mm (0.8 µeq) 302864 – 0.4 × 50 mm (0.13 µeq)	Columns for Predictable, High-Resolution, Isocratic and Gradient separation of oligosaccharides using the Dual EGC mode, Thermo Scientific™ Dionex™ RFIC™ systems to electrolytically generate KOH/KMSA eluents by using a methanesulfonic acid (MSA) EGC cartridge and a potassium hydroxide (KOH) EGC cartridge in series with each other	Predictable, and accurate high resolution separations of oligosaccharides, linear polysaccharides and galacto-oligosaccharides	AN 72714 : HPAE-PAD analysis of galactosyl-oligosaccharide-containing samples using dual eluent generation cartridges
Thermo Scientific™ Dionex™ CarboPac™ PA210-Fast-4µm	088953 – 4 × 150 mm (66 µeq) 088954 – 2 × 150 mm (16.5 µeq) 088955 – 4 × 30 mm (13.2 µeq) 088956 – 2 × 30 mm (3.3 µeq)	High resolution analysis of mono-, di-, tri-, tetra- and pentasaccharides in various types of food samples	Separations of food sugars like glucose, galactose, fructose, sucrose, rhamnose, stachyose, raffinose, and verbascone in complex food and beverage samples	AN 1158 : HPAE-PAD Determination of Carbohydrates in Honey
Thermo Scientific™ Dionex™ CarboPac™ SA10-Fast-4µm	088652 – 4 × 150 mm (174 µeq) 088654 – 4 × 30 mm (34.8 µeq) 088653 – 2 × 150 mm (43.5 µeq) 088655 – 2 × 30 mm (8.7 µeq)	Column for fast mono- and disaccharide analysis to customers in the Biofuel and Food and Beverage Markets focused on high throughput separations in diverse sample matrices	Fast separations of simple sugars in biofuels and food samples	
Thermo Scientific™ Dionex™ CarboPac™ PA20-Fast-4µm	302747 – 4 × 100 mm 302748 – 4 × 30mm 302749 – 2 × 100 mm 302750 – 2 × 30 mm	Fast and efficient analysis of monosaccharides for therapeutics and food and beverage samples	Provide fast separation and accurate quantification of mono- and disaccharides in food/beverage and pharmaceutical samples	
Thermo Scientific™ Dionex™ CarboPac™ PA200	062896 – 3 × 250 mm (35 µeq) 062895 – 3 × 50 mm (7 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.).	AN1151 : Profiling Galactosyloligosaccharide (GOS)-containing Samples by HPAE-PAD AN 1050 : Protein Glycosylation in Limited-Quantity Sialic Acids in Glycoprotein Hydrolyzates by HPAE-PAD AN 1013 : Polysialic Acid Analysis AN 215 : Asparagine-Linked Oligosaccharides from Polyclonal IgG AN 67 : Determination of Plant-Derived Neutral Oligo- and Polysaccharides AU 150 : 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
Thermo Scientific™ Dionex™ CarboPac™ PA20	060142 – 3 × 150 mm (65 µeq) 060144 – 3 × 50 mm (13 µeq) 072072 – 0.4 × 150 mm (1.16 µeq) 072073 – 0.4 × 50 mm (0.23 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 AN 1050 : Protein Glycosylation in Limited-Quantity Sialic Acids in Glycoprotein Hydrolyzates by HPAE-PAD AU 180 : AN 1091 : Uronic Acids and Wood Sugars in Wood Based Hydrolysates AN 202 : HPAE-PAD Analysis of Mannose-6-Phosphate AN 248 : Lactose in Lactose-Free Milk Products by HPAE-PAD AN 233 : Galactosamine Containing Organic Impurities in Heparin by HPAE-PAD AN 197 : Glucosamine in Dietary Supplements Using HPAE-PAD AN 159 : Determination of Sucralose Using HPAE-PAD AU 164 : Glucosamine in Chondroitin Sulfate-Containing Dietary Supplements Using HPAE-PAD
Thermo Scientific™ Dionex™ CarboPac™ PA20 Fast Sialic Acid	076381 – 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

Currently recommended columns
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 100% solvent-compatible with common organic solvents
 Up to 90% compatible with common organic solvents
 2–5% compatible with common organic solvents


Dionex CarboPac and Dionex AminoPac Columns *(continued)*

Column	Part Number - Format Capacity (µeq/column)	Recommendations	Official Method/ Target Applications	Application Notes
Thermo Scientific™ Dionex™ CarboPac™ MA1	044066 – 4 × 250 mm (1450 µeq) 044067 – 4 × 50 mm (290 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	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
Thermo Scientific™ Dionex™ CarboPac™ SA10	074641 – 4 × 250 mm (290 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
Thermo Scientific™ Dionex™ CarboPac™ SA10-4µm	088233 – 4 × 250 mm (290 µeq) 088234 – 4 × 50 mm (58 µeq) 088235 – 2 × 250 mm (73 µeq) 088236 – 2 × 50 mm (14.6 µeq)	High resolution fast and high capacity separation of mono- and disaccharides in biofuels, foods, and beverages.	High resolution fast analysis of monosaccharides and disaccharides	AN 1089: Carbohydrates in Acid wood Hydrolysates TN 146: Lactose and Lactulose in Milk Products
Thermo Scientific™ Dionex™ BorateTrap™ Column	047078 – 4 × 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	046122 – 4 × 50 mm 060146 – 3 × 30 mm SP5578 – 2 × 50 mm 076200 – 0.4 × 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
Thermo Scientific™ Dionex™ AminoPac™ PA10	SP5678 – 4 × 250 mm (240 µeq) SP5680 – 4 × 50 mm (48 µeq) 055406 – 2 × 250 mm (60 µeq) 055407 – 2 × 50 mm (12 µeq) SP5490 – 9 × 250 mm (1214 µeq) SP5488 – 22 × 250 mm (7260 µeq)	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 AN 142: Tryptophan Using AAA-Direct TN 55: Screening of Matrices and Matrix Ingredients for AAA-Direct TN 50: Amino Acid Content of Peptides by AAA-Direct
Thermo Scientific™ Dionex™ Carbohydrate Removal Cartridge (CRC)	068598 – 2 × 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.	
Thermo Scientific™ Dionex™ CarboPac™ PA100	043055 – 4 × 250 mm (90 µeq) 043054 – 4 × 50 mm (18 µeq) 057182 – 2 × 250 mm (23 µeq) 057183 – 2 × 50 mm (4.6 µeq) SP2089 – 9 × 250 mm (455 µeq) SP2667 – 22 × 250 mm (2722 µeq)	Separations of oligosaccharides	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
Thermo Scientific™ Dionex™ CarboPac™ PA10	046110 – 4 × 250 mm (100 µeq) 046115 – 4 × 50 mm (20 µeq) 057180 – 2 × 250 mm (25 µeq) 057181 – 2 × 50 mm (5 µeq) 082320 – 0.4 × 250 mm (1 µeq) 082320 – 0.4 × 50 mm (0.2 µeq) SP4216 – 9 × 250 mm (500 µeq)	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

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Thermo Scientific™ Dionex™ CarboPac™ PA1	035391 – 4 × 250 mm (100 µeq) 043096 – 4 × 50 mm (20 µeq) 057178 – 2 × 250 mm (25 µeq) 057179 – 2 × 50 mm (5 µeq) 039686 – 9 × 250 mm (500 µeq) 063501 – 9 × 50 mm (100 µeq) SP2866 – 22 × 250 mm (3025 µeq)	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
Thermo Scientific™ Dionex™ AminoPac™ PA1	037022 – 4 × 250 mm (100 µeq) 037023 – 4 × 50 mm (20 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.	

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Find out more at thermofisher.com/ICColumns

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