Thermo Scientific Dionex Ion Chromatography Column Selection Guide

Dionex IonPac Anion Hydroxide Columns

Column	*Format (Capacity µeq/col)*	*Recommendations*	*Target Applications*	*Application Notes*
Thermo Scientific™ Dionex™ IonPac™ AS27	4 × 250 mm (220 µeq) 2 × 250 mm (55 µeq) 0.4 × 250 mm (2.2 µeq)	Analysis of trace bromate in drinking water preserved with ethylenediamine (EDA).	Trace bromate in drinking water preserved with ethylenediamine (EDA). Analysis of drinking water without pretreatment or concentration. Meets or exceeds EPA Methods 300.0, 300.1.	
Dionex IonPac AS26	4 × 250 mm (250 µeq) 2 × 250 mm (62.5 µeq) 0.4 × 250 mm (2.5 µeq)	Haloacetic acids in drinking water. Capillary column in second dimension of 2D-IC method for haloacetic acids in drinking water.	Haloacetic acids in drinking water at low µg/L levels using suppressed conductivity detection.	
Dionex IonPac AS25	4 × 250 mm (350 µeq) 2 × 250 mm (87.5 µeq) 0.4 × 250 mm (3.5 µeq)	Multivalent anions and polarizable anions in complex sample matrices.	Iodide, perchlorate, sulfur species (sulfate, sulfite, thiosulfate, and thiocyanate) in wastewater effluent, scrubber solutions, and food and beverage samples.	
Dionex IonPac AS24A	4 × 250 mm (560 µeq) 2 × 250 mm (140 µeq) 0.4 × 250 mm (5.6 µeq)	Highest capacity anion column for inorganic anions in complex sample matrices. Standard bore (4 mm) column for first dimension of 2D-IC method for haloacetic acids in drinking water.	Haloacetic acids in drinking water at low µg/L levels using 2D-IC with suppressed conductivity detection.	
Dionex IonPac AS24	2 × 250 mm (140 µeq)	Haloacetic acids and bromate prior to MS or MS/MS detection.	Specific for HAAs in drinking water as specified in EPA Method 557.	AN 1000: Small Organic Acids in Sea Water by IC-MS AN 276: Fluoroacetate in Water by IC-MS AN 217: Haloacetic Acids in Water by IC-ESI-MS/MS AN 201: Chloride and Sulfate in Methanol AN 187: Sub-ppm Bromate in Water
Dionex IonPac AS21	2 × 250 mm (45 µeq)	Trace perchlorate prior to MS or MS/MS detection.	Specific for trace perchlorate in drinking water as specified in EPA Method 331.0.	
Dionex IonPac AS20	4 × 250 mm (310 µeq) 2 × 250 mm (77.5 µeq) 0.4 × 250 mm (3.1 µeq)	Trace perchlorate prior to suppressed conductivity detection. Capillary format offers reduced eluent consumption and operating costs. Standard bore 4 mm column is used in the first dimension of 2D-IC method for trace perchlorate in drinking water.	Trace perchlorate in drinking water when high concentrations of chloride, carbonate and sulfate are present. Specified in EPA Method 314.1.	AN 1047: Tartaric Acid and Tolterodine in Tolterodine Tartrate AN 1024: Improved Determination of Trace Perchlorate using 2D-IC AN 1002: Tartaric Acid in Tolterodine Tartrate Drug Products AN 276: Fluoroacetate in Water by IC-MS AN 258: Tetrafluoroborate, Perchlorate and Hexafluoro phosphate in Electrolyte Solution AN 243: Anions and Organic Acids by IC-MS AN 239: Iodide in Seawater AN 176: Sub-ppb Perchlorate in Drinking Water with Preconcentration (EPA 314.1)
Dionex IonPac AS19-4µm	4 × 250 mm (240 µeq) 2 × 250 mm (60 µeq) 0.4 × 250 mm (2.4 µeq)	High resolution separations for routine analysis of inorganic anions and oxyhalides. Capillary format offers reduced eluent consumption and operating costs.	Trace bromate and inorganic anions in drinking water, wastewater, ground water and diverse sample matrices. High resolution analysis of drinking water without pretreatment or concentration. Meets or exceeds EPA Methods 300.0 and 300.1.	
Dionex IonPac AS19	4 × 250 mm (240 µeq) 2 × 250 mm (60 µeq) 0.4 × 250 mm (2.4 µeq)	Routine analysis of inorganic anions and oxyhalides. Capillary format offers reduced eluent consumption and operating costs.	Trace bromate and inorganic anions in drinking water, wastewater, ground water, diverse sample matrices. Analysis of drinking water without pretreatment or concentration. Meets or exceeds EPA Methods 300.0, 300.1.	AN 2967: Fast Separation of Pharmaceutical Ions Using High-Pressure Capillary IC AN 1088: Thiosulfate and Pyrophosphate in Crayfish Wash Powder AN 187: Sub-ppm Bromate with Preconcentration AN 184: Trace Chlorite, Bromate and Chlorate in Bottled Water AN 171: Disinfection By-Product Anions in Water AN 168: Trace Anions and Bromide in Drinking Water AN 167: Trace Oxyhalides and Bromide in Water AN 93: Trace Anions in Conc. Bases AU 169: Silicate and Anions in HPW AU 159: Anions in Caustic Solutions AU 154: Bromate in Drinking Water and Mineral Water AB 136: Inorganic Counter-ions in Pharmaceutical Drugs AB 133: Anions and Cations in Drinking Water TN 113: Guidance for Capillary Anion IC TN 112: Trace Anions in Ultrapure Water

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Dionex IonPac Anion Hydroxide Columns (cont.)

Column	*Format (Capacity µeq/col)*	*Recommendations*	*Target Applications*	*Application Notes*
Dionex IonPac AS18-4µm	4 × 150 mm (171 µeq) 2 × 150 mm (45 µeq) 0.4 × 150 mm (1.71 µeq)	Super fast, high resolution separation (<3 min) of inorganic anions. Requires high-pressure IC for fastest runs. Replacement for Dionex IonPac AS4A, AS12A, AS14A, and AS17-C, and AS18-Fast columns.	Super fast routine analysis of inorganic anions in drinking water and wastewaters.	TN 127: Fast Separations of Inorganic Anions in Water TN 130: Fast Analysis of Salton Sea Samples
Dionex IonPac AS18-Fast	4 × 150 mm (171 µeq) 2 × 150 mm (45 µeq) 0.4 × 150 mm (1.71 µeq)	Fast analysis (< 5 min).	Super fast analysis of inorganic anions in various matrices.	AN 1001: Bisphosphonate Pharmaceuticals and Excipients by IC-MS AB 132: Anions in Drinking Water AU 185: Determination of Nitrite and Nitrate in Wastewater Using Capillary IC with UV Detection
Dionex IonPac AS18	4 × 250 mm (285 µeq) 2 × 250 mm (75 µeq) 0.4 × 250 mm (2.85 µeq)	Common inorganic anions and low MW organic acids in diverse matrices. Meets or exceeds EPA Method 300.0. Capillary format offers reduced eluent consumption and operating costs.	Source and drinking waters, industrial cooling waters, hazardous waste waters, dump leachates, acid rain, foods and beverages, pharmaceutical counterions, polyols and polysulfonates.	AN 1105: Anions and Cations in Produced Water from Hydraulic Fracturing AN 1078: Benzenesulfonic Acid Counterion in Amlodipine Besylate by IC AN 1075: IC Assay for Chloride and Sulfate in Adenosine AN 260: Monitoring Anions and Cations during Desalination AN 254: Total Phosphorus in Wastewater AN 209: Fluoride in Acidulated Topical Solution AN 190: Sulfate Counterion and Anionic Impurities in Aminoglycoside Drug Substances AN 175: Sulfate and Chloride in Ethanol AN 165: Benzoate in Liquid Foods AN 160: Residual Trifluoroacetate in Protein Purification Buffers AN 156: Anions in Toothpaste AN 154: Inorganic Ions in Environmental Waters AU 163: Trace Anions in Organic Solvent AU 146: Anions in Acid Rain AB 106: Trace Anions Using Dionex ICS-2100
Dionex IonPac AS17-C	4 × 250 mm (30 µeq) 2 × 250 mm (7.5 µeq)	Fast analysis of common inorganic anions in diverse matrices. Low sulfate blanks. Excellent retention of fluoride from water dip. Meets or exceeds EPA Methods 300.0, 300.1. Recommend Dionex IonPac AS18 column for diverse sample matrices.	Fluoride, chloride, acetate, nitrate, bromide, nitrate, carbonate, sulfonate, phosphate in < 10 min, source and drinking waters, industrial cooling waters, hazardous waste waters, dump leachates, acid rain, food and beverage, pharmaceutical counterions, polyols and polysulfonates.	AU 157: Trace Anions on Electronic Components AB 108: Phosphite in Electroless Nickel Plating Bath
Dionex IonPac AS16	4 × 250 mm (170 µeq) 2 × 250 mm (42.5 µeq) 0.4 × 250 mm (1.7 µeq)	High capacity for hydrophobic, highly polarizable anions including iodide, thiocyanate, thiosulfate, and perchlorate. Polyvalent anions including polyphosphates and polycarboxylates. Capillary column is used in the second dimension of the 2D-IC method for trace perchlorate in drinking water.	Perchlorate in drinking water, surface water, and ground water matrices by large loop injection.	AN 1024: Improved Determination of Trace Perchlorate in 2D-IC AN 533: Perchlorate in Infant Formula AN 263: Endothall in Water by IC-MS/MS AN 176: Sub-ppb Perchlorate with Preconc./Matrix Elimination AN 151: Perchlorate by IC-MS AN 144: Perchlorate in High Ionic Strength Fertilizer AN 138: Thiosulfate in Refinery Waste Waters AN 134: Trace Perchlorate in Waters AU 172: Polyphosphates using IC AU 148: Perchlorate by RFIC AU 145: Perchlorate in Water
Dionex IonPac AS15	4 × 250 mm (225 µeq) 3 × 150 mm (70 µeq) 2 × 250 mm (56.25 µeq) 0.4 × 250 mm (2.25 µeq)	Trace analysis of inorganic anions and low molecular weight organic acids in high purity water matrices. Available in 5 µm particle size (3 × 150 mm) for fast, high-capacity analysis.	Trace analysis in semiconductor and power industries. Use with Dionex IonPac AC15 concentrator column for ppt analysis.	AN 220: Anion Impurities in Water Insoluble Pharmaceuticals AN 200: Cyanide in Urea AN 185: Trace Anions in Power Waters AN 179: Carbohydrates and Amino Acids by 3D Amperometry AN 173: Cyanide in Drinking Water by PAD AN 172: Azide in Aqueous Samples AN 171: Disinfection By-Products Anions and Bromide RFIC AN 137: Trace Anions in High-Nitrate AU 143: Chloride in Acid Copper Plating Bath AU 142: Trace Anions in High Purity Water AB 151: Trace Anions in Nuclear Power Plant Secondary Feed Water Containing Polyacrylic Acid AB 125: Trace Anions in High Purity Water TN 113: Guidance for using Capillary Anion IC TN 112: Trace Anions in Ultrapure Water

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Dionex IonPac Anion Hydroxide Columns (cont.)

Column	*Format (Capacity µeq/col)*	*Recommendations*	*Target Applications*	*Application Notes*
Dionex IonPac AS11-HC-4µm	4 × 250 mm (290 µeq) 2 × 250 mm (72.5 µeq) 0.4 × 250 mm (2.9 µeq)	High capacity, high resolution for the separation of organic acids and inorganic anions in complex matrices. Requires high-pressure IC.	Anions and organic acids in foods and beverages, wastewater, brines, and fermentation broths.	AN 1068: Organic Acids in Fruit Juices and Wine by HPIC TN 122: Heat Stable Amine Salts in MDEA Solutions TN 126: Organic Acids in Beer using HPIC
Dionex IonPac AS11-HC	4 × 250 mm (290 µeq) 2 × 250 mm (72.5 µeq) 0.4 × 250 mm (2.9 µeq)	High capacity for the determination of organic acids and inorganic anions in uncharacterized samples.	Carboxylic acids (acetate, lactate, quinate, formate, butyrate) in foods and beverages, wastewater, brine, fermentation broths.	AN1107: Anions and Carboxylic Acids in Urban Fine Particles AN 1076: Monochloroacetic Acid in Carbocisteine Carbocisteine AN 1068: Organic Acids in Fruit Juices and Wine by HPIC AN 244: Total Phosphorous using 2D-IC AN 143: Organic Acids in Fruit Juices AN 123: Inorganic Anions and Organic Acids in Fermentation Broths AU 178: OSCS in Heparin Sodium AB 112: Organic Acids in Cranberry and Bilberry Extracts AB 104: Organic Acids in Biomass by IC-MS TN 44: Trace Anions in Conc. Phosphoric Acid TN 45: Trace Anions in Hydrofluoric Acid
Dionex IonPac AS11	4 × 250 mm (45 µeq) 2 × 250 mm (11 µeq)	Fast gradient screening of inorganic anions and organic acids in simple matrices.	Inorganic anions and organic acids in wastewater, power plant waters, pharmaceutical formulations, food and beverage samples.	AN 1044: Anions in Dried Distiller Grains with Solubles AN 1007: Polyphosphates in Shrimp by IC AN 1000: Small Organic Acids in Sea Water by IC-MS AN 295: Phytic Acid in Soybeans and Sesame Seeds AN 262: 2-Ethylhexanoic Acid Impurity in Clavulanate AN 253: Infant Formula Sialic Acids by HPAE-PAD AN 238: Sulfate and Sulfamate in Topiramate by IC AN 235: Sulfates in Heparin Sodium by IC/UV AN 165: Benzoate in Liquid Food Products AN 164: Citrate and Phosphate in Pharmaceutical Formulations AN 161: Metal Cyanide Complexes by IC/UV AN 123: Anions and Organic Acids in Fermentation Broths AN 121: Perchlorate in Water AN 113: Trace Anions in HPW AN 112: Nitrate and Nitrite in Meat AN 107: Ions in Physiological Fluids AN 106: IC in the Pharmaceutical Industry AN 104: Personal Care Products by IC AN 71: Analysis of Polyphosphates by IC AN 46: Analysis of Beer by IC AN 37: Iodide in Milk AN 25: Anions and Organic Acids in Beverages AU 149: Metal Cyanides in Solids by IC/UV AU 147: Metal Cyanides by IC/UV AU 140: Iodide in Urine AU 122: Iodide in Brine

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Thermo Scientific Dionex Ion Chromatography Column Selection Guide

Dionex IonPac Anion Carbonate Columns

Column	*Format (Capacity µeq/col)*	*Recommendations*	*Target Applications*	*Application Notes*
Dionex IonPac AS23	4 × 250 mm (320 µeq) 2 × 250 mm (80 µeq) 0.4 × 250 mm (3.2 µeq)	Recommended for inorganic anions and oxyhalides. Replacement for Dionex IonPac AS9-HC column. The capillary format offers reduced eluent consumption and lower operating costs.	Trace bromate in drinking water. Meets or exceeds EPA 300.0 and 300.1.	AN 208: Bromate in Bottled Mineral Water AN 184: Chlorite, Bromate, and Chlorate in Bottled Mineral Water
Dionex IonPac AS22-Fast-4µm	4 × 150 mm (126 µeq) 2 × 150 mm (31.5 µeq) 0.4 × 150 mm (1.3 µeq)	Fast, high resolution separation (<5 min) of inorganic anions. Requires high-pressure IC for fastest runs.	Fast analysis of inorganic anions in drinking water. Meets or exceeds EPA 300.0 and 300.1.	
Dionex IonPac AS22-Fast	4 × 150 mm (126 µeq) 2 × 150 mm (31.5 µeq)	Recommended for fast analysis of common inorganic anions (< 5 min).	Fast analysis of inorganic anions in drinking water. Meets or exceeds EPA 300.0 and 300.1.	AN 1002: Tartaric Acid in Tolterodine Tartrate Drug Products AB 120: Drinking Water by Fast-IC
Dionex IonPac AS22	4 × 250 mm (220 µeq) 2 × 250 mm (52.5 µeq) 0.4 × 250 mm (2.2 µeq)	Recommended for fast analysis of common inorganic anions. Alternative to Dionex IonPac AS4A-SC, AS12A, AS14 and AS14A columns. The capillary format offers reduced eluent consumption and lower operating costs.	Analysis of common inorganic anions in drinking water, wastewater and process waters. Meets or exceeds EPA 300.0 and 300.1.	AN 1052: Chloride and Sulfate in Gasoline-Denatured Products AN 1002: Tartaric Acid in Tolterodine Tartrate Drug Products AN 297: Sulfate and Chloride in Fuel-Grade Butanol AN 254: Total Phosphorus in Wastewater AN 249: Methacholine Chloride and Potential Impurities AU 197: Anions in Wastewater AU 194: Existent and Potential Sulfate and Total Inorganic Chloride inDenatured Alcohol AU 175: Anions and Organic Acids in NPP Waters AU 161: Sulfate and Chloride in Ethanol AU 113: Dissolved Silica and Anions AB 165: Toluenesulfonic Acid in Water-Insoluable Drugs AB 121: Anions in Drinking Water
Dionex IonPac AS14A	4 × 250 mm (120 µeq) 3 × 150 mm (40 µeq)	Analysis of common inorganic anions. The Dionex IonPac AS22, AS22-Fast-4µm and AS22-Fast columns are recommended for common inorganic anions.	Meets or exceeds EPA 300.0 (A). Available in 5 µm (3 × 150 mm) for fast analysis of common anions in < 8 min.	AN 140: Fast Anions in Water
Dionex IonPac AS14	4 × 250 mm (65 µeq) 2 × 250 mm (16 µeq)	Moderate capacity for fast analysis of common inorganic anions. Excellent fluoride retention. The Dionex IonPac AS22, AS22-Fast-4µm and AS22-Fast columns are recommended for common inorganic anions.	Meets or exceeds EPA 300.0 (A) and (B).	AN 166: Trace Anion Analysis in Borated Water AN 135: Anions in Drinking Water AN 133: Anions in Drinking Water AN 116: Anions in Pharmaceuticals AN 115: TFA in Peptides AN 114: Trace Anions in High Purity Water AN 2: Nitrate and Sulfate on Air Filters AU 191: Trace Anions in Lithium-Containing Borated Water TN 47: Low Baseline Noise by Suppression
Dionex IonPac AS12A	4 × 200 mm (52 µeq) 2 × 200 mm (13 µeq)	Moderate capacity for analysis of inorganic anions and oxyhalides. The Dionex IonPac AS23 column is recommended for inorganic anions and oxyhalides.	Trace chloride and sulfate in high carbonate matrices.	AN 284: Ethyl Sulfate Impurity in Indinavir Sulfate Drug
Dionex IonPac AS9-HC	4 × 250 mm (190 µeq) 2 × 250 mm (47.5 µeq) 0.4 × 250 mm (1.9 µeq)	Carbonate column for inorganic anions and oxyhalides. The Dionex IonPac AS23 column is recommended for inorganic anions and oxyhalides.	Trace bromate in drinking water. Specified column in EPA 300.1 and 317.0.	AN 149: Chlorite, Bromate, Bromide, Chlorate in Water AN 136: Oxyhalide and Bromide in Drinking Water (postcolumn reaction) AN 135: Anions in Wastewater AN 85: Anions in Solvent AN 81: Oxyhalides and Bromide, Direct Injection TN 46: Trace Anions in Concentrated Glycolic Acid
Dionex IonPac AS4A-SC	4 × 250 mm (20 µeq) 2 × 250 mm (5 µeq)	Low capacity for fast analysis of common inorganic anions. The Dionex IonPac AS22, AS22-Fast-4µm and AS22-Fast columns are recommended for common inorganic anions.	Specified column in U.S. EPA Method 300.0 (A).	AN 296: Sulfate and Chloride in Fuel-Grade Butanol AN 135: Anions in Wastewater AN 133: Anions in Drinking Water AN 56: Trace Anions and Key Organic Acids AN 36: Oxalate in Urine AN 31: Anions in Acid Rain

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Dionex IonPac Cation Columns

Column	Format (Capacity µeq/col)	Recommendations	Target Applications	Application Notes
Dionex IonPac CS19-4µm	4 × 250 mm (2410 µeq) 2 × 250 mm (600 µeq) 0.4 × 250 mm (24 µeq)	Dionex IonPac CS18 replacement column high resolution separation of cations, small polar amines, moderately hydrophobic amines and polyvalent amines. Requires high-pressure IC for faster runs using higher flow rates.	Common cations and amines in environmental waters, power plant waters, chemical process solutions, refinery scrubber solutions, personal care products, and food and beverage samples.	
Dionex IonPac CS19	4 × 250 mm (2410 µeq) 2 × 250 mm (600 µeq) 0.4 × 250 mm (24 µeq)	Dionex IonPac CS18 replacement column for common cations, small polar amines, moderately hydrophobic amines, and polyvalent amines. Operates under 3000 psi for use on standard IC systems.	Common cations and amines in environmental waters, power plant waters, chemical process solutions, refinery scrubber solutions, personal care products, and food and beverage samples.	AN 1057: Methylamine in Drug Products AN 1054: Ammonia in Tobacco Smoke AN 1062: Morpholine in Linezolid by IC AN 298: Dimethylamine in Metformin HCl Drug AU 193: Choline in Infant Formula and Adult Nutritionals AU 189: Determination of Choline in Infant Formula and Other Food Samples
Dionex IonPac CS18	2 × 250 mm (290 µeq)	Polar amines (alkanolamines and methylamines) and moderately hydrophobic amines (biogenic amines, diamines and polyamines).	Amines, biogenic amines in food and beverage samples.	AN 183: Biogenic Amines in Fermented and Non-Fermented Foods AN 182: Biogenic Amines in Alcoholic Beverages AU 162: Biogenic Amines in Fruit, Vegetables and Chocolate
Dionex IonPac CS17	4 × 250 mm (1450 µeq) 2 × 250 mm (363 µeq) 0.4 × 250 mm (14.5 µeq)	Dionex IonPac CS14 replacement column for gradient separation of polyvalent, more hydrophobic amines, biogenic amines, and diamines. Solvent compatability allows elution of more hydrophobic amines and easy column cleanup.	Gradient separations of Power Industry amines, such as cyclohexylamine, without solvent.	AN 231: Melamine in Milk AN 199: N-Methylpyrrolidine in Cefepime AN 194: Carbachol in Ophthalmic Solutions AU 160: N,N-Dimethyl-o-Toluidine and N,N-Diethyl-o-Toluidine in Ethylene Gas AU 155: Cations and Amines in H_2O_2
Dionex IonPac CS16	5 × 250 mm (8400 µeq) 3 × 250 mm (3000 µeq) 0.5 × 250 mm (84 µeq)	Highest capacity cation column to separate high- to low-concentration ratios of sodium and ammonium in complex sample matrices. Best carboxylate column for low pH and high capacity. Capillary format offers reduced eluent consumption and lower operating cost.	Short chain amines e.g., alkylamines and alkanolamines in various sample matrices. Low sodium in the presence of high ammonium (and the reverse) in industrial samples.	AN 2967: Fast Separation of Pharmaceutical Ions Using High Pressure Capillary IC AN 1105: Anions and Cations in Produced Water from Hydraulic Fracturing AN 1090: Lithium, sodium and Calcium in Lithium Carbonate AN 1073: Ammonia in Sodium Bicarbonate AN 1057: Methylamine in Drug Products AN 1054: Ammonia in Tobacco Smoke AN 247: Morpholine, Ethylamine and Hydrazine in NPP Wastewaters AN 157: Cations by Suppressed and Non-Suppressed IC AN 152: Sodium (ppt) in High Concentration Ethanolamine in Power Plant Waters AN 141: Inorganic Cations/Ammonium in Environmental Waters TN 121: Inorganic Cations in Municipal Wastewater AN 94: Trace Cations in Concentrated Acids Using AutoNeutralization Pretreatment
Dionex IonPac CS12A	4 × 250 mm (2800 µeq) 2 × 250 mm (700 µeq) 0.4 × 250 mm (28 µeq)	Separation of mono- and divalent cations especially manganese. For high- to low-concentration ratios of adjacent eluting cations use Dionex IonPac CS16 column. Capillary format offers reduced eluent consumption and operating costs.	Common cations and ammonium in drinking water, process waters and industrial samples. Trace cations in various matrices.	AN 2967: Fast Separation of Pharmaceutical Ions Using High Pressure Capillary IC AN 1079: Trivalent and Hexavalent Chromium using ASE and IC AN 1053: Dissolved Manganese in Lithium/Manganese Oxide Battery Electrolyte AN 1003: Trace Sodium in Cranberry Powder AN 269: Trace Cations and Amines by IC-MS AN 260: Monitoring Anions and Cations during Desalination AN 222: Trace Strontium by Pre-Concentration AN 203: Cations in Biodiesel AN 124: Choline in Dry Milk and Infant Formula AN 120: Calcium and Magnesium in Brine AN 107: Calcium and Magnesium in Brine AN 106: IC in the Pharmaceutical Industry AU 158: Manganese in Brine AU 137: Trace Lithium in Process Waters AB 136: Inorganic Counter ions in Pharmaceutical Drugs AB 133: Anions and Cations in Drinking Water TN 130: Fast Analysis of Salton Sea Samples TN 117: Inorganic Cations in Wastewater
Dionex IonPac CS12A-5µm	3 × 150 mm (940 µeq) 0.4 × 150 mm (9.4 µeq)	High efficiency and fast analysis (9 minutes) of mono- and divalent cations. Super fast analysis (< 5 min.) Reduced analysis time and eluent use, increased sensitivity. Capillary format offers reduced eluent consumption and operating costs.	Fast analysis of inorganic cations and ammonium in various matrices.	AN 1072: IC Assay for Ammonia in Adenosine AB 117: Cations in Fruit Juices

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Dionex IonPac Specialty Column

Column	*Format (Capacity µeq/col)*	*Recommendations*	*Target Applications*	*Application Notes*
Dionex IonPac AS7	4 × 250 mm (100 µeq) 2 × 250 mm (25 µeq)	Separation of polyvalent anions in complex matrices.	Hexavalent chromium in environmental matrices.	AN 43175: Chromium in Toys by IC-ICP-MS AN 295: Phytic Acid in Soybeans and Sesame Seeds AN 289: USP Risedronate Sodium Assay AN 268: Chelating Agents in Water AN 80: Hex Chrome in Water AU 179: Hex Chrome in Drinking Water AU 144: Hex Chrome in Water AU 107: Cyanide in Alkaline Solutions AB 107: Cr(VI) in Dyes TN 26: Cr(VI) in Wastewater
Dionex IonPac CS5A	4 × 250 mm (40 µeq, anions) (20 µeq, cations) 2 × 250 mm (10 µeq, anions) (5 µeq, cations)	Recommended for the separation of transition and lanthanide metals. Also useful for aluminium separation.	Transition and lanthanide metals in power industry waters.	AN 43130: Identify Mercury Contamination in Herbal Medicines AN 277: Transition Metals in Power Waters AN 131: Transition Metals in HPW AN 108: Transition Metals in Serum and Whole Blood AU 168: Transition Metals in Complex Matrices AU 165: Cr(III) and Cr(VI) by IC TN 10: Transition Metals by IC TN 117: Inorganic Cations in Wastewater

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