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Thermo Scientific Dionex IonPac IC column selection guide

Find the best IC column for your application

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Thermo Scientific™ Dionex™ IonPac™ Anion Hydroxide Columns

Column	Part Number - Format (Capacity µeq/col)	Recommendations	Target Applications	Application Notes
Thermo Scientific Dionex IonPac AS31	303147 - 2 x 250 mm (116 µeq) 303148 - 2 x 50 mm (1.5 µeq)	Fast analysis (~35 min) of haloacetic acids, bromate, and dalapon prior to MS or MS/MS detection. HPIC system required.	Haloacetic acids in drinking water at low µg/L levels.	
Dionex IonPac AS28-Fast-4µm	088747 - 4 × 150 mm (230 µeq) 088749 - 2 × 150 mm (57.5 µeq) 088751 - 0.4 × 150 mm (2.3 µeq) 088748 - 4 x 30 mm (20 µeq) 088750 - 2 x 30 mm (5 µeq) 088752 - 0.4 x 35 mm (0.2 µeq)	Trace analysis of inorganic anions and low molecular weight organic acids in high purity water matrices. Recommended replacement for Dionex IonPac AS15 column. HPIC system required.	Trace analysis in semiconductor and power industries.	AN 72481: Trace Anions in Basic Solutions by Single Pass AutoNeutralization PN 71981: A New Hydroxide Selective Anion Exchange Phase for IC
Dionex IonPac AS27	088437 - 4 × 250 mm (220 µeq) 088439 - 2 × 250 mm (55 µeq) 088441 - 0.4 × 250 mm (2.2 µeq) 088438 - 4 × 50 mm (5 µeq) 088440 - 2 × 50 mm (1.25 µeq) 088442 - 0.4 × 50 mm (0.05 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 and 300.1 requirements.	AU 198: Oxyhalides and Bromide in Drinking Water
Dionex IonPac AS26	076020 - 4 × 250 mm (250 µeq) 076022 - 2 × 250 mm (62.5 µeq) 076018 - 0.4 × 250 mm (2.5 µeq) 076021 - 4 × 50 mm (6 µeq) 076023 - 2 × 50 mm (1.5 µeq) 076019 - 0.4 × 50 mm (0.06 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.	AN 72479: Haloacetic Acids in Water Using 2D-IC by Thermo Fisher Method 557.1 PN 2995: Development of Dionex IonPac AS26 for HAA Analysis PN 72191: Haloacetic Acids in Drinking Water Using Matrix Elimination
Dionex IonPac AS25	076014 - 4 × 250 mm (350 µeq) 076016 - 2 × 250 mm (87.5 µeq) 076012 - 0.4 × 250 mm (3.5 µeq) 076015 - 4 × 50 mm (3.5 µeq) 076017 - 2 × 50 mm (0.875 µeq) 076013 - 0.4 × 50 mm (0.04 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.	AN 72622: Fast Separation of Heat Stable Salts
Dionex IonPac AS24A	076010 - 4 × 250 mm (560 µeq) 078112 - 2 × 250 mm (140 µeq) 082536 - 0.4 × 250 mm (5.6 µeq) 076011 - 4 × 50 mm (6 µeq) 082535 - 2 × 50 mm (1.5 µeq) 078115 - 0.4 × 50 mm (0.06 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.	AN 630: Haloacetic Acids, Dalapon, and Bromate in Water by IC-MS/MS AN 72479: Haloacetic Acids in Water Using 2D-IC by Thermo Fisher Method 557.1 PN 72191: Haloacetic Acids in Drinking Water Using Matrix Elimination
Dionex IonPac AS24	064153 - 2 × 250 mm (140 µeq) 064151 - 2 x 50 mm (1.5 µeq)	Haloacetic acids and bromate prior to MS or MS/MS detection. Use the Dionex IonPac AS31 column in HPIC systems for faster run times.	Specific for HAAs in drinking water as specified in EPA Method 557.	AN 187: Sub-ppb Bromate in Water Using Preconcentration with 2D-IC AN 201: Chloride and Sulfate in Methanol AN 276: Fluoroacetate in Water by IC-MS AN 661: Polar Pesticides in Food by IC-MS/MS AN 666: Trace Polar Pesticides in Water by IC-MS/MS AN 1000: Small Organic Acids in Sea Water by IC-MS PN 70428: HAAs in Drinking Water Using IC-MS/MS PN 70429: Development of a New Column for HAAs by IC-MS PN 70726: Glyphosate and AMPA by IC-MS/MS
Dionex IonPac AS21	063009 - 2 × 250 mm (45 µeq) 063071 - 2 x 50 mm (1.5 µeq)	Trace perchlorate prior to MS or MS/MS detection.	Specific for trace perchlorate in drinking water as specified in EPA Method 331.0.	AN 491: Glyphosate and AMPA by IC-ESI-MS/MS
Dionex IonPac AS20	063148 - 4 × 250 mm (310 µeq) 063065 - 2 × 250 mm (77.5 µeq) 075399 - 0.4 × 250 mm (3.1 µeq) 063154 - 4 × 50 mm (6 µeq) 063066 - 2 × 50 mm (1.5 µeq) 075400 - 0.4 × 50 mm (0.06 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.	AB 72480: Inorganic Anions Using IC-MS AN 176: Sub-ppb Perchlorate in Drinking Water with Preconcentration (EPA 314.1) AN 239: Iodide in Seawater AN 243: Anions and Organic Acids by IC-MS AN 258: Tetrafluoroborate, Perchlorate and Hexafluorophosphate in Electrolyte Solution AN 276: Fluoroacetate in Water by IC-MS AN 279: Nitrate and Nitrite in Milk AN 1002: Tartaric Acid in Tolterodine Tartrate Drug Products AN 1024: Improved Determination of Trace Perchlorate using 2D-IC AN 1047: Tartaric Acid and Tolterodine in Tolterodine Tartrate AN 72587: Perchlorate by EPA 332.0 Using IC-MS AU 72507: Perchlorate in Environmental Waters by IC-MS

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Dionex IonPac Anion Hydroxide Columns *(continued)*

Column	Part Number - Format (Capacity µeq/col)	Recommendations	Target Applications	Application Notes
Dionex IonPac AS19-4µm	083217 - 4 × 250 mm (240 µeq) 083223 - 2 × 250 mm (60 µeq) 083230 - 0.4 × 250 mm (2.4 µeq) 083221 - 4 × 50 mm (6 µeq) 083225 - 2 × 50 mm (1.5 µeq) 083233 - 0.4 × 50 mm (0.06 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 requirements.	AN 1157: Organic Acids in Kombucha Using HPIC AU 203: Trace Oxyhalides and Bromide in Water AN 72886: Oxyhalides and Bromide in Drinking Water Using IC-MS
Dionex IonPac AS19	062885 - 4 × 250 mm (240 µeq) 062886 - 2 × 250 mm (60 µeq) 072064 - 0.4 × 250 mm (2.4 µeq) 062887 - 4 × 50 mm (6 µeq) 062888 - 2 × 50 mm (1.5 µeq) 072065 - 0.4 × 50 mm (0.06 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 and 300.1 requirements.	AN 72751: Anionic Impurities in Sulfuric Acid AN 72765: Pesticides and Oxyhalides in Beer and Strawberries Using IC-HRAM-MS AB 133: Anions and Cations in Drinking Water AB 136: Inorganic Counter-ions in Pharmaceutical Drugs AN 93: Trace Anions in Conc. Bases AN 167: Trace Oxyhalides and Bromide in Water AN 168: Trace Anions and Bromide in Drinking Water AN 171: Disinfection By-Product Anions in Water AN 184: Trace Chlorite, Bromate and Chlorate in Bottled Water AN 187: Sub-ppb Bromate in Water Using Preconcentration with 2D-IC AN 1088: Thiosulfate and Pyrophosphate in Crayfish Wash Powder AN 2967: Fast Separation of Pharmaceutical Ions Using High-Pressure Capillary IC AU 154: Bromate in Drinking Water and Mineral Water AU 159: Anions in Caustic Solutions AU 169: Silicate and Anions in HPW TN 112: Trace Anions in Ultrapure Water TN 113: Guidance for Capillary Anion IC
Dionex IonPac AS18-Fast-4µm	076034 - 4 × 150 mm (174 µeq) 076036 - 2 × 150 mm (43.5 µeq) 082314 - 0.4 × 150 mm (1.74 µeq) 076035 - 4 × 30 mm (4.2 µeq) 076037 - 2 × 30 mm (1.05 µeq) 076033 - 0.4 × 35 mm (0.042 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 wastewater.	AN 72693: Total Fluorine, Chlorine, and Sulfur in Aromatic Hydrocarbons Using Combustion IC AN 1075: Chloride and Sulfate in Adenosine AN 1113: Chloride and Sulfate in Water and Soil AN 72268: Fluoride in Tea Using Combustion IC AN 72333: Adsorbable Organic Halogens in Wastewater Using Combustion IC AN 72440: Inorganic Anions in Wastewater Using Capillary IC AN 72481: Trace Anions in Basic Solutions by Single Pass AutoNeutralization AU 200: Fast Anion Determinations in Water TN 127: Fast Separations of Inorganic Anions in Water TN 130: Fast Analysis of Salton Sea Samples
Dionex IonPac AS18-Fast	075760 - 4 × 150 mm (171 µeq) 075759 - 2 × 150 mm (45 µeq) 072062 - 0.4 × 150 mm (1.71 µeq) 075762 - 4 × 30 mm (6 µeq) 075761 - 2 × 30 mm (1.5 µeq) 072063 - 0.4 × 35 mm (0.07 µeq)	Fast analysis (<5 min).	Super fast analysis of inorganic anions in various matrices.	AB 132: Anions in Drinking Water AN 1001: Bisphosphonate Pharmaceuticals and Excipients by IC-MS AU 185: Determination of Nitrite and Nitrate in Wastewater Using Capillary IC with UV Detection
Dionex IonPac AS18	060549 - 4 × 250 mm (285 µeq) 060553 - 2 × 250 mm (75 µeq) 075772 - 0.4 × 250 mm (2.85 µeq) 060551 - 4 × 50 mm (10 µeq) 060555 - 2 × 50 mm (2.5 µeq) 075773 - 0.4 × 50 mm (1 µeq)	Common inorganic anions and low MW organic acids in diverse matrices. Meets or exceeds EPA Method 300.0 requirements. 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.	AB 106: Trace Anions Using Dionex ICS-2100 AN 154: Inorganic Ions in Environmental Waters AN 156: Anions in Toothpaste AN 160: Residual Trifluoroacetate in Protein Purification Buffers AN 165: Benzoate in Liquid Foods AN 175: Sulfate and Chloride in Ethanol AN 190: Sulfate Counterion and Anionic Impurities in Aminoglycoside Drug Substances AN 209: Fluoride in Acidulated Topical Solution AN 254: Total Phosphorus in Wastewater AN 260: Monitoring Anions and Cations during Desalination AN 1078: Benzenesulfonic Acid Counterion in Amlodipine Besylate by IC AN 1105: Anions and Cations in Produced Water from Hydraulic Fracturing AU 146: Anions in Acid Rain AU 163: Trace Anions in Organic Solvent

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Dionex IonPac Anion Hydroxide Columns *(continued)*

Column	Part Number - Format (Capacity µeq/col)	Recommendations	Target Applications	Application Notes
Dionex IonPac AS17-C	066294 - 4 × 250 mm (30 µeq) 066296 - 2 × 250 mm (7.5 µeq) 066295 - 4 × 50 mm (6 µeq) 066297 - 2 × 50 mm (1.5 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 and 300.1 requirements. 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.	AB 108: Phosphite in Electroless Nickel Plating Bath AB 198: Trace Anions in Ultrapure Water AN 146: Trace Anions in High Purity Water AN 153: Trace Anions in Extracts of Electronic Components AN 170: Silicate in High Purity Water AN 206: Oxalate and Anions in Bayer Liquor AN 72573: Halogens in Polymers and Electronics Using Combustion IC AU 157: Trace Anions on Electronic Components TN 72206: Trace Anions in Ultrapure Water
Dionex IonPac AS16-4µm	302753 - 4 × 250 mm (170 µeq) 302755 - 2 × 250 mm (42.5 µeq) 302757 - 0.4 × 250 mm (1.7 µeq) 302754 - 4 × 50 mm (3.5 µeq) 302756 - 2 × 50 mm (0.88 µeq) 302758 - 0.4 × 50 mm (0.04 µeq)	Fast analysis of highly polarizable anions including thiosulfate, iodide, thiocyanate, and perchlorate with a simple, isocratic eluent. Polyvalent anions including polyphosphates and polycarboxylates. Offers improved peak efficiencies and resolution compared to standard Dionex IonPac AS16 columns. HPIC system required.	U.S. EPA Methods 314.0, 314.1, 314.2, and 332.	
Dionex IonPac AS16	055376 - 4 × 250 mm (170 µeq) 055378 - 2 × 250 mm (42.5 µeq) 082315 - 0.4 × 250 mm (1.7 µeq) 055377 - 4 × 50 mm (3.5 µeq) 055379 - 2 × 50 mm (0.875 µeq) 082316 - 0.4 × 50 mm (0.04 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. Use the Dionex IonPac AS16-4µm column in HPIC systems for improved peak efficiencies and resolution.	Perchlorate in drinking water, surface water, and ground water samples by large loop injection.	AN 134: Trace Perchlorate in Waters AN 138: Thiosulfate in Refinery Waste Waters AN 144: Perchlorate in High Ionic Strength Fertilizer AN 1136: Perchlorate in Drinking Water AN 151: Perchlorate by IC-MS AN 176: Sub-ppb Perchlorate with Preconc./ Matrix Elimination AN 263: Endothall in Water by IC-MS/MS AN 533: Perchlorate in Infant Formula AN 1024: Improved Determination of Trace Perchlorate in Water Using 2D-IC AU 172: Polyphosphates using IC AU 148: Perchlorate by RFIC AU 145: Perchlorate in Water
Dionex IonPac AS15	053940 - 4 × 250 mm (225 µeq) 057594 - 3 × 150 mm (70 µeq) 053941 - 2 × 250 mm (56.25 µeq) 075662 - 0.4 × 250 mm (2.25 µeq) 053942 - 4 × 50 mm (45 µeq) 057597 - 3 × 30 mm (14 µeq) 053943 - 2 × 50 mm (11.25 µeq) 075663 - 0.4 × 50 mm (0.45 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. Use the Dionex IonPac AS28-Fast-4µm column in HPIC systems for improved peak efficiencies and resolution.	Trace anion analysis in semiconductor and power industries. Use with Dionex IonPac AC15 concentrator column for ng/L (ppt) determinations.	AB 125: Trace Anions in High Purity Water Using Capillary IC AB 151: Trace Anions in Nuclear Power Plant Secondary Feed Water Containing Polyacrylic Acid AN 137: Trace Anions in High-Nitrate Matrices AN 171: Disinfection Byproduct Anions and Bromide Using RFIC AN 172: Azide in Aqueous Samples AN 173: Cyanide in Drinking Water by PAD AN 185: Trace Anions in Power Plant Waters AN 200: Cyanate in Urea AN 220: Anion Impurities in Water Insoluble Pharmaceuticals AN 1155: Chloride in Infant Formula and Adult Nutritionals AU 142: Trace Anions in High Purity Water AU 143: Chloride in Acid Copper Plating Bath TN 48: Trace Anions in High Purity Water TN 112: Trace Anions in Ultrapure Water Using Capillary IC TN 113: Guidance for Using Capillary Anion IC
Dionex IonPac AS11-HC-4µm	082313 - 4 × 250 mm (290 µeq) 078035 - 2 × 250 mm (72.5 µeq) 078031 - 0.4 × 250 mm (2.9 µeq) 078034 - 4 × 50 mm (7 µeq) 078036 - 2 × 50 mm (1.75 µeq) 078032 - 0.4 × 50 mm (0.07 µeq)	High capacity, high resolution for the separation of organic acids and inorganic anions in complex matrices. Requires high-pressure IC system.	Anions and organic acids in foods and beverages, wastewater, brines, and fermentation broths.	AN 72808: Organic Acids in Herbal Beverages Using IC-MS AN 1068: Organic Acids in Fruit Juices and Wine by HPIC AN 1157: Organic Acids in Kombucha using HPIC AN 1163: Anions on PCBs by IPC-TM-650 Method 2.3.28 AN 72438: Organic Acids in Animal Feed AN 72349: Chlorine, Bromine, and Sulfur in Polyethylene Materials by Combustion IC AU 205: Citrate and Phosphate in Pharmaceuticals TN 122: Heat Stable Amine Salts in MDEA Solutions TN 126: Organic Acids in Beer using HPIC

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Dionex IonPac Anion Hydroxide Columns *(continued)*

Column	Part Number - Format (Capacity µeq/col)	Recommendations	Target Applications	Application Notes
Dionex IonPac AS11-HC	052960 - 4 × 250 mm (290 µeq) 052961 - 2 × 250 mm (72.5 µeq) 078429 - 0.4 × 250 mm (2.9 µeq) 052962 - 4 × 50 mm (7 µeq) 052963 - 2 × 50 mm (1.75 µeq) 078430 - 0.4 × 50 mm (0.07 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.	AN 72808: Organic Acids in Herbal Beverages Using IC-MS AB 104: Organic Acids in Biomass by IC-MS AB 112: Organic Acids in Cranberry and Bilberry Extracts AN 123: Inorganic Anions and Organic Acids in Fermentation Broths AN 143: Organic Acids in Fruit Juices AN 244: Total Phosphorous using 2D-IC AN 1068: Organic Acids in Fruit Juices and Wine by HPIC AN 1076: Monochloroacetic Acid in Carbocisteine AN 1107: Anions and Carboxylic Acids in Urban Fine Particles AN 72204: Formic and Acetic Acids in Petroleum Products AU 178: OSCS in Heparin Sodium TN 44: Trace Anions in Conc. Phosphoric Acid TN 45: Trace Anions in Hydrofluoric Acid
Dionex IonPac AS11	044076 - 4 × 250 mm (45 µeq) 044077 - 2 × 250 mm (11 µeq) 044078 - 4 × 50 mm (9 µeq) 044079 - 2 × 50 mm (2.2 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 25: Anions and Organic Acids in Beverages AN 37: Iodide and Iodate in Infant Formula AN 46: Analysis of Beer by IC AN 71: Analysis of Polyphosphates by IC AN 104: Personal Care Products by IC AN 106: IC in the Pharmaceutical Industry AN 107: Ions in Physiological Fluids AN 112: Nitrate and Nitrite in Meat AN 113: Trace Anions in High Purity Water AN 116: Anions in Pharmaceuticals AN 121: Perchlorate in Water AN 123: Inorganic Anions and Organic Acids in Fermentation Broths AN 161: Metal Cyanide Complexes by IC/UV AN 164: Citrate and Phosphate in Pharmaceutical Formulations AN 165: Benzoate in Liquid Food Products AN 235: Sulfates in Heparin Sodium by IC/UV AN 238: Sulfate and Sulfamate in Topiramate by IC AN 253: Infant Formula Sialic Acids by HPAE-PAD AN 262: 2-Ethylhexanoic Acid Impurity in Clavulanate AN 295: Phytic Acid in Soybeans and Sesame Seeds AN 1000: Small Organic Acids in Sea Water by IC-MS AN 1007: Polyphosphates and Citrate in Shrimp by IC AN 1044: Anions in Dried Distiller Grains with Solubles AN 72779: β-cyclodextrin in Betadex Sulfobutyl Ether Sodium AU 122: Iodide in Brine AU 140: Iodide in Urine AU 147: Metal Cyanides by IC/UV AU 149: Metal Cyanides in Solid Wastes by IC/UV
Dionex IonPac Fast Anion IIIA	062964 - 3 x 250 mm (55 µeq) 062966 - 3 x 50 mm (1 µeq)	Fast determination of inorganic anions using an isocratic eluent	Fast analysis (<7 min) of phosphoric and citric acids in cola soft drinks. Fast separation (~4 min) of chloride and sulfate in simple sample matrices.	AN 210: Phosphate Content of Phosphorylated Proteins AU 153: Fast Determinations of Phosphate and Citrate in Carbonated Beverages Using Online Degassing AN 72501: Rapid Determination of Phosphate and Citrate in Carbonated Soft Drinks

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Dionex IonPac Anion Carbonate Columns

Column	Part Number - Format (Capacity µeq/col)	Recommendations	Target Applications	Application Notes
Dionex IonPac AS29-Fast-4µm	302833 - 4 × 150 mm (126 µeq) 302835 - 2 × 150 mm (31.5 µeq) 302834 - 4 × 30 mm (4 µeq) 302836 - 2 × 30 mm (1 µeq)	Recommended for fast analysis (<10 min) of common inorganic anions in high ionic strength samples, including acidic or basic samples. HPIC system required. Use with Dionex AS29 Eluent Concentrate for convenient eluent preparation.	Fast analysis of inorganic anions in drinking water. Meets or exceeds EPA 300.0 and 300.1 requirements.	
Dionex IonPac AS23-4µm	302555 - 4 × 250 mm (320 µeq) 302557 - 2 × 250 mm (80 µeq) 302556 - 4 × 50 mm (6 µeq) 302558 - 2 × 50 mm (1.5 µeq)	Recommended for inorganic anions and oxyhalides. Improved peak efficiencies and resolution compared to standard Dionex IonPac AS23 column. HPIC system required. Use with Dionex AS23 Eluent Concentrate for convenient eluent preparation.	Trace bromate in drinking water. Meets or exceeds EPA 300.0 and 300.1, ASTM 4327, ISO 10304, and ISO 15061 requirements.	AN 72751: Anionic Impurities in Sulfuric Acid AN 72209: Trace Oxyhalides and Bromide in Water AU 72331: Anions in Sodium Hydroxide
Dionex IonPac AS23	064149 - 4 × 250 mm (320 µeq) 064145 - 2 × 250 mm (80 µeq) 079782 - 0.4 × 250 mm (3.2 µeq) 064147 - 4 × 50 mm (6 µeq) 064143 - 2 × 50 mm (15 µeq) 083160 - 0.4 × 50 mm (0.06 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 requirements.	AN 184: Chlorite, Bromate, and Chlorate in Bottled Mineral Water AN 208: Bromate in Bottled Mineral Water AU 72588: Chlorine, Bromine, and Sulfur in Polyethylene Materials Using Combustion IC
Dionex IonPac AS22-Fast-4µm	088486 - 4 × 150 mm (126 µeq) 088488 - 2 × 150 mm (31.5 µeq) 088490 - 0.4 × 150 mm (1.3 µeq) 088487 - 4 × 30 mm (4 µeq) 088489 - 2 × 30 mm (1 µeq) 088491 - 0.4 × 35 mm (0.04 µeq)	Fast, high resolution separation (<5 min) of inorganic anions. Requires high-pressure IC for fastest runs. Use with Dionex AS22 Eluent Concentrate for convenient eluent preparation.	Fast analysis of inorganic anions in drinking water. Meets or exceeds EPA 300.0 and 300.1 requirements.	AB 184: Anions in Drinking Water
Dionex IonPac AS22-Fast	079936 - 4 × 150 mm (126 µeq) 079937 - 2 × 150 mm (31.5 µeq) 072784 - 4 × 30 mm (4 µeq) 072785 - 2 × 30 mm (1 µeq)	Recommended for fast analysis of common inorganic anions (<5 min). Use with Dionex AS22 Eluent Concentrate for convenient eluent preparation.	Fast analysis of inorganic anions in drinking water. Meets or exceeds EPA 300.0 and 300.1 requirements.	AB 120: Drinking Water by Fast-IC AN 1002: Tartaric Acid in Tolterodine Tartrate Drug Products
Dionex IonPac AS22	064141 - 4 × 250 mm (220 µeq) 064137 - 2 × 250 mm (52.5 µeq) 079057 - 0.4 × 250 mm (2.2 µeq) 064139 - 4 × 50 mm (6 µeq) 064135 - 2 × 50 mm (1.5 µeq) 079058 - 0.4 × 50 mm (0.06 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. Use with Dionex AS22 Eluent Concentrate for convenient eluent preparation.	Analysis of common inorganic anions in drinking water, wastewater and process waters. Meets or exceeds EPA 300.0 and 300.1 requirements.	AB 121: Anions in Drinking Water AB 165: Toluenesulfonic Acid in Water-Insoluable Drugs AN 249: Methacholine Chloride and Potential Impurities AN 254: Total Phosphorus in Wastewater AN 297: Sulfate and Chloride in Fuel-Grade Butanol AN 1002: Tartaric Acid in Tolterodine Tartrate Drug Products AN 1052: Chloride and Sulfate in Gasoline-Denatured Products AN 1113: Chloride and Sulfate in Water and Soil AU 113: Dissolved Silica and Anions AU 161: Sulfate and Chloride in Ethanol AU 175: Anions and Organic Acids in NPP Waters AU 194: Existent and Potential Sulfate and Total Inorganic Chloride in Denatured Alcohol AU 196: Anions in Drinking Water AU 197: Anions in Wastewater TN 72778: Anions in Drinking Water
Dionex IonPac AS14A	056904 - 4 × 250 mm (120 µeq) 056901 - 3 × 150 mm (40 µeq) 056897 - 4 × 50 mm (24 µeq) 056899 - 3 × 30 mm (8 µeq)	Analysis of common inorganic anions. Use with Dionex AS14A Eluent Concentrate for convenient eluent preparation. The Dionex IonPac AS22, AS22-Fast, AS22-Fast-4µm, and AS29-Fast-4µm columns are recommended for common inorganic anions.	Meets or exceeds EPA 300.0 (A) requirements. Available in 5 µm (3 × 150 mm) for fast analysis of common anions in <8 min.	AN 140: Fast Anions in Water AN 175: Sulfate and Chloride in Ethanol
Dionex IonPac AS14	046124 - 4 × 250 mm (65 µeq) 046129 - 2 × 250 mm (16 µeq) 046134 - 4 × 50 mm (13 µeq) 046138 - 2 × 50 mm (3.25 µeq)	Moderate capacity for fast analysis of common inorganic anions. Excellent fluoride retention. Use with Dionex AS14 Eluent Concentrate for convenient eluent preparation. The Dionex IonPac AS22, AS22-Fast, AS22-Fast-4µm, and AS29-Fast-4µm columns are recommended for common inorganic anions.	Meets or exceeds EPA 300.0 (A) and (B) requirements.	AN 2: Nitrate and Sulfate on Air Filters AN 114: Trace Anions in High Purity Water AN 115: TFA in Peptides AN 116: Anions in Pharmaceuticals AN 133: Anions in Drinking Water AN 135: Anions in Wastewater AN 166: Trace Anion Analysis in Borated Water AU 191: Trace Anions in Lithium-Containing Borated Water TN 47: Low Baseline Noise by Suppression

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Dionex IonPac Anion Carbonate Columns *(continued)*

Column	Part Number - Format (Capacity µeq/col)	Recommendations	Target Applications	Application Notes
Dionex IonPac AS12A	046034 - 4 × 200 mm (52 µeq) 046055 - 2 × 200 mm (13 µeq) 079801 - 4 × 50 mm (4 µeq) 046056 - 2 × 50 mm (1 µeq)	Moderate capacity for analysis of inorganic anions and oxyhalides. The Dionex IonPac AS23 and AS23-4µm columns are recommended for inorganic anions and oxyhalides.	Trace chloride and sulfate in high carbonate matrices.	AN 284: Ethyl Sulfate Impurity in Indinavir Sulfate Drug AN 1148: Assay of Nitrite and Nitrate Impurity in Sodium Nitrite AN 72502: Assay of Sodium Thiosulfate and Impurities
Dionex IonPac AS9-HC	051786 - 4 × 250 mm (190 µeq) 052244 - 2 × 250 mm (47.5 µeq) 082319 - 0.4 × 250 mm (1.9 µeq) 051791 - 4 × 50 mm (6 µeq) 052248 - 2 × 50 mm (1.5 µeq) 088296 - 0.4 × 50 mm (0.06 µeq)	Carbonate column for inorganic anions and oxyhalides. The Dionex IonPac AS23 and AS23-4µm columns are recommended for inorganic anions and oxyhalides.	Trace bromate in drinking water. Specified column in EPA 300.1 and 317.0.	AN 81: Oxyhalides and Bromide, Direct Injection AN 85: Anions in Solvent AN 135: Anions in Wastewater AN 136: Oxyhalides and Bromide in Drinking Water (postcolumn reaction) AN 149: Chlorite, Bromate, Bromide, Chlorate in Water TN 46: Trace Anions in Concentrated Glycolic Acid
Dionex IonPac AS4A-SC	043174 - 4 × 250 mm (20 µeq) 043125 - 2 × 250 mm (5 µeq) 043175 - 4 × 50 mm (4 µeq) 043126 - 2 × 50 mm (1 µeq)	Low capacity for fast analysis of common inorganic anions. Use with Dionex AS4A Eluent Concentrate for convenient eluent preparation. The Dionex IonPac AS22, AS22-Fast, AS22-Fast-4µm, and AS29-Fast-4µm columns are recommended for common inorganic anions.	Specified column in U.S. EPA Method 300.0 (A).	AN 31: Anions in Acid Rain AN 36: Oxalate in Urine AN 56: Trace Anions and Organic Acids in Power Plant Waters AN 133: Anions in Drinking Water AN 135: Anions in Wastewater AN 290: Sulfate and Chloride in Ethanol AN 296: Sulfate and Chloride in Fuel-Grade Butanol

Dionex IonPac Ion-Exclusion Columns

Dionex IonPac ICE-AS1	043197 - 9 x 250 mm (27 µeq) 064198 - 4 x 250 mm (5.3 µeq) 302622 - 9 x 150 mm (16.2 µeq) 067842 - 4 x 50 mm (1 µeq)	Fast separation of aliphatic organic acids and alcohols in complex or high-ionic strength samples.	Ideal for electroactive ions such as cyanide and sulfite. Useful for organic acids and alcohols in complex sample matrices including brines, mineral acids, wastewater, power plant water, foods and beverages, Kraft liquors, and soil extracts.	AN 291: Organic Acids in Wastewater AN 54: Total and Free Sulfite in Foods and Beverages AN 21: Organic Acids in Wine AN 117: Carbohydrates and Glycols in Pharmaceuticals AN 188: Glycols and Alcohols in Fermentation Broths AN 409: Acrylamide in Food
Dionex IonPac ICE-AS6	079798 - 9 x 250 mm (27 µeq)	Fast analysis of aliphatic organic acids and alcohols in complex or high-ionic strength samples, elution of strong acid anions into the void, difficult separations (e.g., tartrate from citrate, glycolate from lactate and formate, lactate from malate, and formate from succinate). Ideally suited for most applications performed on the Dionex IonPac ICE-AS1 column.	Determination of aliphatic organic acids and alcohols in matrices that include food and beverage products, biological samples, industrial process liquors, and wastewater.	AN 106: IC in the Pharmaceutical Industry AN 104: Analysis of Personal Care Products by IC AN 46: Analysis of Beer by IC AN 72438: Organic Acids in Animal Feeds TN 46: Trace Anions in Concentrated Glycolic Acid TN 44: Trace Anions in Concentrated Phosphoric Acid
Dionex IonPac ICE-Borate	053945 - 9 x 250 mm (27 µeq)	Monitoring trace levels of borate in high-purity water; used with Dionex IonPac TBC-1 concentrator column and suppressed conductivity detection.	Trace level (ppt) borate detection in water purification systems.	AN 1119: Trace Boric Acid in Cosmetics

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Dionex IonPac Cation Columns

Column	Part Number - Format (Capacity µeq/col)	Recommendations	Target Applications	Application Notes
Dionex IonPac CS20	302608 - 4 × 250 mm (3000 µeq) 302606 - 2 × 250 mm (750 µeq) 302610 - 0.4 × 250 mm (30 µeq) 302609 - 4 × 50 mm (600 µeq) 302607 - 2 × 50 mm (150 µeq) 302611 - 0.4 × 50 mm (6 µeq)	Determination of inorganic cations and amines including methylamines, ethylamines, ethanolamines, and alkanolamines. Supports the use of high temperatures and solvents for complex separations. HPIC system required.	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 CS19-4µm	078837 - 4 × 250 mm (2410 µeq) 078836 - 2 × 250 mm (600 µeq) 078835 - 0.4 × 250 mm (24 µeq) 078840 - 4 × 50 mm (46 µeq) 078839 - 2 × 50 mm (11 µeq) 078838 - 0.4 × 50 mm (0.5 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.	AN 72609: Cations and Amines in Alkanolamine Scrubbing Solutions by IC-ESI MS
Dionex IonPac CS19	076026 - 4 × 250 mm (2410 µeq) 076028 - 2 × 250 mm (600 µeq) 076024 - 0.4 × 250 mm (24 µeq) 076027 - 4 × 50 mm (46 µeq) 076029 - 2 × 50 mm (11 µeq) 076025 - 0.4 × 50 mm (0.5 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 1054: Ammonia in Tobacco Smoke AN 1057: Methylamine in Drug Products AN 1062: Morpholine in Linezolid by IC AN 72649: Validation of IC Method for Limit of Choline Test in USP Succinylcholine Chloride Monograph AU 189: Determination of Choline in Infant Formula and Other Food Samples AU 193: Choline in Infant Formula and Adult Nutritionals
Dionex IonPac CS18	062878 - 2 × 250 mm (290 µeq) 062880 - 2 x 50 mm (58 µeq)	Polar amines (alkanolamines and methylamines) and moderately hydrophobic amines (biogenic amines, diamines and polyamines).	Amines, biogenic amines in food and beverage samples.	AN 182: Biogenic Amines in Alcoholic Beverages AN 183: Biogenic Amines in Fermented and Non-Fermented Foods AU 162: Biogenic Amines in Fruit, Vegetables and Chocolate
Dionex IonPac CS17	060557 - 4 × 250 mm (1450 µeq) 060561 - 2 × 250 mm (363 µeq) 075774 - 0.4 × 250 mm (14.5 µeq) 060560 - 4 × 50 mm (290 µeq) 060563 - 2 × 50 mm (73 µeq) 075775 - 0.4 × 50 mm (2.9 µeq)	Dionex IonPac CS14 replacement column for gradient separation of polyvalent, more hydrophobic amines, biogenic amines, and diamines. Solvent compatibility allows elution of more hydrophobic amines and easy column cleanup.	Gradient separations of Power Industry amines, such as cyclohexylamine, without solvent.	AN 194: Carbachol in Ophthalmic Solutions AN 199: N-Methylpyrrolidine in Cefepime AN 231: Melamine in Milk AN 249: Methacholine Chloride and Potential Impurities AU 155: Cations and Amines in H_2O_2 AU 160: N,N-Dimethyl-o-Toluidine and N,N-Diethyl-p-Toluidine in Ethylene Gas
Dionex IonPac CS16-Fast-4µm	088599 - 4 × 150 mm (3220 µeq) 088601 - 2 × 150 mm (800 µeq) 088641 - 0.4 × 150 mm (30 µeq) 088600 - 4 × 30 mm (650 µeq) 088602 - 2 × 30 mm (160 µeq) 088642 - 0.4 × 35 mm (5 µeq)	Fast determination of disparate concentration ratios of sodium and ammonium in simple matrices. HPIC system required.	Sample matrices containing trace sodium in the presence of high ammonium (and vice versa). Short chain amines (e.g., alkylamines and alkanolamines) in simple matrices.	AN 72482: Urea in Ultrapure Water by IC-MS/MS
Dionex IonPac CS16-4µm	088584 - 4 × 250 mm (5370 µeq) 088582 - 2 × 250 mm (1340 µeq) 088615 - 0.4 × 250 mm (50 µeq) 088585 - 4 × 50 mm (1070 µeq) 088583 - 2 × 50 mm (270 µeq) 088616 - 0.4 × 50 mm (10 µeq)	Determination of disparate concentration ratios of sodium and ammonium in complex matrices. Offers improved peak efficiencies and resolution compared to standard Dionex IonPac CS16 columns. Capillary format offers reduced eluent consumption and lower operating cost. HPIC system required.	Industrial samples containing trace sodium in the presence of high ammonium (and vice versa). Short chain amines (e.g., alkylamines and alkanolamines) in complex matrices.	AU 204: Cations and Ammonium in Environmental Waters
Dionex IonPac CS16	079805 - 5 × 250 mm (8400 µeq) 059596 - 3 × 250 mm (3000 µeq) 075401 - 0.5 × 250 mm (84 µeq) 057574 - 5 × 50 mm (1700 µeq) 059595 - 3 × 50 mm (600 µeq) 075402 - 0.5 × 50 mm (17 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 94: Trace Cations in Concentrated Acids Using AutoNeutralization Pretreatment AN 141: Inorganic Cations/Ammonium in Environmental Waters AN 152: Sodium (ppt) in High Concentration Ethanolamine in Power Plant Waters AN 157: Cations by Suppressed and Non-Suppressed IC AN 247: Morpholine, Ethanolamine, and Hydrazine in NPP Wastewaters AN 1073: Ammonia in Sodium Bicarbonate AN 1090: Lithium, Sodium and Calcium in Lithium Carbonate AN 1105: Anions and Cations in Produced Water from Hydraulic Fracturing AN 2967: Fast Separation of Pharmaceutical Ions Using High Pressure Capillary IC TN 121: Inorganic Cations in Municipal Wastewater

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Dionex IonPac Cation Columns *(continued)*

Column	Part Number - Format (Capacity µeq/col)	Recommendations	Target Applications	Application Notes
Dionex IonPac CS12A	046073 - 4 × 250 mm (2800 µeq) 046075 - 2 × 250 mm (700 µeq) 079914 - 0.4 × 250 mm (28 µeq) 059960 - 2 x 100 mm (280 µeq) 046074 - 4 × 50 mm (560 µeq) 046076 - 2 × 50 mm (140 µeq) 072067 - 0.4 × 50 mm (5.6 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.	AB 117: Cations in Fruit Juices AB 133: Anions and Cations in Drinking Water AB 136: Inorganic Counter ions in Pharmaceutical Drugs AN 106: IC in the Pharmaceutical Industry AN 107: Ions in Physiological Fluids AN 120: Calcium and Magnesium in Brine AN 124: Choline in Dry Milk and Infant Formula AN 203: Cations in Biodiesel AN 222: Trace Strontium by Pre-Concentration AN 1003: Trace Sodium in Cranberry Powder AN 1053: Dissolved Manganese in Lithium/ Manganese Oxide Battery Electrolyte AN 2967: Fast Separation of Pharmaceutical Ions Using High Pressure Capillary IC AU 137: Trace Lithium in Process Waters AU 158: Manganese in Brine
Dionex IonPac CS12A-5µm	057185 - 3 × 150 mm (940 µeq) 072068 - 0.4 × 150 mm (9.4 µeq) 057184 - 3 × 30 mm (190 µeq) 072069 - 0.4 × 35 mm (1.9 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.	AB 72403: Inorganic Cations and Low Mass Amines in Spoiled Grape Juice by IC-MS AB 72404: Inorganic Cations and Low Mass Amines in Spoiled Cranberry Juice by IC-MS AB 72405: Inorganic Cations and Low Mass Amines in Tea Using IC-MS AB 72406: Inorganic Cations in Groundwater Using IC-MS AN 260: Monitoring Anions and Cations During Desalination AN 269: Trace Cations and Amines by IC-MS AN 1072: IC Assay for Ammonia in Adenosine TN 117: Inorganic Cations in Wastewater TN 130: Fast Analysis of Salton Sea Samples
Dionex IonPac SCS 1	079809 - 4 x 250 mm (318 µeq) 079808 - 2 x 250 mm (80 µeq) 079933 - 4 x 50 mm (63 µeq) 079810 - 2 x 50 mm (16 µeq)	Non-suppressed conductivity detection of common inorganic cations, ammonium, select alkanolamines, and transition metals.	Common cations and ammonium in power generation, chemical, petrochemical, and environmental samples. Recommended when extended calibration linearity for ammonium or alkanolamines is required.	AN 157: Comparison of Suppressed to Nonsuppressed Conductivity Detection AN 158: Trace Sodium and Transition Metals in Power Industry Samples with Nonsuppressed Conductivity Detection AN 259: N-Methylpyrrolidine in Cefepime with Nonsuppressed Conductivity Detection AN 286: Trace Copper, Nickel, and Zinc in Boiling Water Reactors with Nonsuppressed Conductivity Detection

High Capacity | Moderate Capacity | Low Capacity | High Solvent Compatibility | Moderate Solvent Compatibility | Low Solvent Compatibility

Dionex IonPac Specialty Columns

Column	Part Number - Format (Capacity µeq/col)	Recommendations	Target Applications	Application Notes
Dionex IonPac AmG-3µm C18	302693 - 4 × 150 mm (n/a) 302694 - 4 x 30 mm (n/a)	Optimized for various aminoglycoside antibiotic analyses including drug purity characterization and quantification, therapeutic drug monitoring, and residual control testing.	Separation of Etimicin, Gentamicin, Spectinomycin, Netilmicin, and related impurities.	AN 72647: Gentamicin and Related Impurities in Gentamicin Sulfate AU 72648: Gentamicin and Related Impurities in Gentamicin Sulfate Using Simple Eluents AN 72792: Etimicin and Related Impurities in Etimicin Sulfate AN 72880: Spectinomycin and Related Impurities in Spectinomycin Dihydrochloride
Dionex IonPac AS7	035393 - 4 × 250 mm (100 µeq) 063097 - 2 × 250 mm (25 µeq) 035394 - 4 × 50 mm (25 µeq) 063099 - 2 × 50 mm (6.25 µeq)	Separation of polyvalent anions in complex matrices.	Hexavalent chromium in environmental matrices.	AB 107: Cr(VI) in Dyes AN 44407: Chromium Species Using IC-ICP-MS AN 80: Hex Chrome in Water AN 268: Chelating Agents in Water AN 289: USP Risedronate Sodium Assay AN 43175: Chromium in Toys by IC-ICP-MS AU 107: Cyanide in Alkaline Solutions AU 144: Hex Chrome in Water AU 179: Hex Chrome in Drinking Water TN 26: Cr(VI) in Wastewater
Dionex IonPac CS5A	046100 - 4 × 250 mm (40 µeq, anions) (20 µeq, cations) 052576 - 2 × 250 mm (10 µeq, anions) (5 µeq, cations) 046104 - 4 × 50 mm (8 µeq, anions) (4 µeq, cations) 052836 - 2 × 50 mm (2 µeq, anions) (1 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 72680: Zinc Oxide in Sunscreen AN 108: Transition Metals in Serum and Whole Blood AN 131: Transition Metals in High Purity Water AN 277: Transition Metals in Power Plant Waters AN 1079: Trivalent and Hexavalent Chromium Using ASE and IC AN 43130: Mercury in Herbal Medicines by IC-ICP-MS AU 165: Cr(III) and Cr(VI) by IC AU 168: Transition Metals in Complex Matrices TN 10: Transition Metals by IC

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