

Our range of IC Columns

Preselection

Anions	Anions	high concentrations simple setup HBO ₃ ²⁻ without suppression HBO ₃ ²⁻ no HPO ₄ ²⁻	→ A
		whole concentration range HPO ₄ ²⁻ with suppression	→ B
	Organic anions		with or without suppression → C
	Carbohydrates		→ D
	Oxidizable anions	electrochemical detection (ELCD)	→ E
Cations			→ E

This symbol stands for the standard column



A) Anions without chemical suppression

Requirements and/or application	Column
No F ⁻ Simple separation problems Simple matrices Rapid separation	IC anion column Metrosep A Supp 4 – 250 6.1006.430
F ⁻ Difficult separation problems Difficult matrices	IC anion column Metrosep Dual 2 6.1006.100
F ⁻ Difficult separation problems Difficult matrices Biological samples	IC anion column Metrosep Dual 3 6.1006.120
Cl ⁻ , NO ₃ ⁻ , SO ₄ ²⁻ Difficult matrices (e.g. dyestuffs) HBO ₃ ²⁻ , H ₂ SiO ₄ ²⁻	IC anion columns Hamilton PRP-X100 6.1005.000 (125 mm) 6.1005.010 (250 mm)
F ⁻ , acetate Difficult matrices Special applications (e.g. BF ₄ ⁻)	IC anion column Super-Sep 6.1009.000

[Preselection](#) →

B) Anions with chemical suppression

Requirements and/or application	Column
F ⁻ , formate, acetate, Cl ⁻ SO ₃ ²⁻ , SO ₄ ²⁻ Simple matrices Standard anions ClO ₂ ⁻ , ClO ₃ ⁻ , ClO ₄ ⁻ , BrO ₃ ⁻ Special separation problems	IC anion column Metrosep Dual 2 6.1006.100
F ⁻ , formate, acetate, Cl ⁻ SO ₃ ²⁻ , SO ₄ ²⁻ Simple matrices Standard anions ClO ₂ ⁻ , ClO ₃ ⁻ , ClO ₄ ⁻ , BrO ₃ ⁻ Special separation problems Biological samples	IC anion column Metrosep Dual 3 6.1006.120
High-speed chromatography	IC anion column (monolith) Metrosep Dual 4 – 25 6.1016.010
Perchlorate in difficult matrices, EPA 314 Very high ionic strength	IC anion column (monolith) Metrosep Dual 4 – 100 6.1016.030
Large concentration differences High ionic strength ClO ₂ ⁻ , ClO ₃ ⁻ , ClO ₄ ⁻ , BrO ₃ ⁻	IC anion column Metrosep A Supp 1 – 250 6.1005.300
SCN ⁻ , SO ₃ ²⁻ , SO ₄ ²⁻ , S ₂ O ₃ ²⁻ Polyphosphates	IC anion column Metrosep A Supp 3 – 250 6.1005.320
Standard anions Difficult matrices Critical samples I ⁻	IC anion column Metrosep A Supp 4 – 250 6.1006.430
Standard anions F ⁻ , Cl ⁻ , Br ⁻ , I ⁻ ClO ₂ ⁻ , ClO ₃ ⁻ , ClO ₄ ⁻ , BrO ₃ ⁻ BrO ₃ ⁻ at high ionic strength Cr(VI) (CrO ₄ ²⁻) I ⁻ (not with 250 mm) Method development Universal use	IC anion columns Metrosep A Supp 5 6.1006.550 (50 mm) 6.1006.510 (100 mm)
Difficult matrices Difficult separation problems Rapid separation (with 50 and 100 mm) PO ₄ ³⁻ in soft drinks (with 100 mm) IC/MS coupling	6.1006.520 (150 mm) 6.1006.530 (250 mm)
Standard anions Oxyhalides, EPA 300 Isocratic separation of glycolate and acetate Difficult separations Bayer liquors	IC anion column Metrosep A Supp 7 – 250 6.1006.630
Anions in salt solutions	IC anion column Metrosep A Supp 8 – 150 6.1017.010

→ [B](#)

B) Anions with chemical suppression

Requirements and/or application	Column
PO_4^{3-} in soft drinks with cyclamate Standard anions (no F^-) SCN^- , SO_3^{2-} , SO_4^{2-} , $\text{S}_2\text{O}_3^{2-}$ Separation of SO_3^{2-} , SO_4^{2-} Aerosols with PILS/MARGA (75 mm) Air analysis IC/MS coupling Aggressive matrices	IC anion columns Metrosep A Supp10 6.1020.050 (50 mm) 6.1020.070 (75 mm) 6.1020.010 (100 mm) 6.1020.030 (250 mm)
Standard anions Cl^- , NO_3^- , SO_4^{2-} in drinking water Simple separation problems Rapid separation Method development	IC anion column Metrosep A Supp 15 6.1030.450 (50 mm)
Standard anions Simple separation problems Rapid separation Citrate/phosphate Simple matrix IC/MS coupling	IC anion column Metrosep A Supp 15 6.1030.410 (100 mm)
Standard anions Drinking water analysis F^- ; glycolate Phosphate species Difficult separation problems Complex matrix Method development IC/MS coupling	IC anion column Metrosep A Supp 15 6.1030.420 (150 mm)
Standard anions Universal applications Monobasic organic acids Dibasic organic acids in the presence of SO_4^{2-} Nitrogen species Complex separation problems Difficult matrix IC/MS coupling	IC anion column Metrosep A Supp 15 6.1030.430 (250 mm)
Standard anions Universal applications Oligo- and polysaccharides Cl^- ; SO_4^{2-} in electroplating baths Quality control of ultrapure chemicals (e.g. concentrated acids) Complex separation problems Difficult matrix IC/MS coupling	IC anion column Metrosep A Supp 16 6.1031.430 (250 mm)
Short retention times No Cl^-	IC anion column Phenomenex Star-Ion A300™ 6.1005.100
BrO_3^- at high ionic strength	IC anion column Phenomenex Star-Ion A300™ HC 6.1005.110

[Preselection](#) →

C) Organic anion

Requirements and/or application	Column
Organic acids: citrate, tartrate, malate, ascorbate, succinate, etc. Short-chain fatty acids: formate, acetate, propionate, butyrate, etc. Simple matrix (100 mm) Difficult matrix (250 mm) Simple separation problems (100 mm) Difficult separation problems (250 mm)	IC exclusion columns Metrosep Organic Acids 6.1005.210 (100 mm) 6.1005.200 (250 mm)
Glycolic acid, monochloroacetic acid Simple matrices Simple separation problems Formate determination	IC exclusion column Hamilton PRP-X300 6.1005.030

[Preselection](#) →

D) Carbohydrates

Requirements and/or application	Column
Monosaccharides Disaccharides Oligosaccharides Sugar alcohols Amino acids Simple separation problems Rapid separation	IC carbohydrate column Metrosep Carb 1 – 150 6.1013.010
Monosaccharides Disaccharides Oligosaccharides Sugar alcohols Difficult separation problems Difficult matrix	IC carbohydrate column Metrosep Carb 1 – 250 6.1013.000

[Preselection](#) →

E) Oxidizable anions

Requirements and/or application	Column
CN ⁻ S ²⁻	IC anion column Metrosep A Supp 1 – 250 6.1005.300
CN ⁻ S ²⁻ NO ₂ ⁻	IC anion column Metrosep A Supp 10 – 100 6.1020.010
CN ⁻ S ²⁻	IC anion column Metrosep A Supp 8 – 150 6.1017.010
ClO ₂ ⁻ , NO ₂ ⁻ , S ₂ O ₃ ²⁻ , SCN ⁻ , I ⁻	IC anion column Super-Sep 6.1009.000
Br ⁻ , I ⁻	IC anion column Metrosep Dual 2 6.1006.100
NO ₂ ⁻ , ClO ₂ ⁻ S ₂ O ₃ ²⁻ , SCN ⁻ , I ⁻	IC anion column Metrosep A Supp 5 – 100 6.1006.510

[Preselection](#) →

F) Cations

Requirements and/or application	Column
Special applications Biogenic amines	IC cation column Metrosep C 1 6.1010.100
Li ⁺ , Na ⁺ , K ⁺ , Rb ⁺ , Cs ⁺ , Mg ²⁺ , Ca ²⁺ , Sr ²⁺ , Ba ²⁺ , NH ₄ ⁺ Very rapid separation Simple matrices	IC cation column Metrosep C 4 – 50 6.1050.450
Li ⁺ , Na ⁺ , K ⁺ , Rb ⁺ , Cs ⁺ , Mg ²⁺ , Ca ²⁺ , Sr ²⁺ , Ba ²⁺ , NH ₄ ⁺ Lipophilic amines with short retention times Rapid separation	IC cation column Metrosep C 4 – 100 6.1050.410
Li ⁺ , Na ⁺ , K ⁺ , Rb ⁺ , Cs ⁺ , Mg ²⁺ , Ca ²⁺ , Sr ²⁺ , Ba ²⁺ , NH ₄ ⁺ Transition metals Amines Replacing IC cation column Metrosep Cation 1-2, 6.1010.000	IC cation column Metrosep C 4 – 150 6.1050.420
Li ⁺ , Na ⁺ , K ⁺ , Rb ⁺ , Cs ⁺ , Mg ²⁺ , Ca ²⁺ , Sr ²⁺ , Ba ²⁺ , NH ₄ ⁺ , Mn ²⁺ , Co ²⁺ , Ni ²⁺ , Zn ²⁺ , Cd ²⁺ , Pb ²⁺ , amines NH ₄ ⁺ , ethanolamines Very good Na ⁺ /NH ₄ ⁺ -separation NH ₄ ⁺ , methyl- and ethylamines Transition metals Difficult separation problems Large concentration differences	IC cation column Metrosep C 4 – 250 6.1050.430
Li ⁺ , Na ⁺ , K ⁺ , Rb ⁺ , Cs ⁺ , Mg ²⁺ , Ca ²⁺ , Sr ²⁺ , Ba ²⁺ , NH ₄ ⁺ , Co ²⁺ , Ni ²⁺ , Zn ²⁺ , Cd ²⁺ , Pb ²⁺ , Amine NH ₄ ⁺ , monoethanolamine Transition metals Very good Na ⁺ /NH ₄ ⁺ -separation Low detection limits	IC cation column Metrosep C 3 – 250 6.1010.430
Mg ²⁺ , Ca ²⁺ , Sr ²⁺ , Ba ²⁺ , Fe ²⁺ , Co ²⁺ , Ni ²⁺ , Cd ²⁺ , Zn ²⁺ , Mn ²⁺ Mg ²⁺ , Ca ²⁺ besides large amounts of Na ⁺	IC cation column Nucleosil 5SA 6.1007.000
Transition metals, U and Pu	*

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* Voltammetry and polarography allow to reliably determine the transition metals as well as uranium and plutonium down to the ultratrace level.

