Automated Chemistry Analyzers Applications

Analyte	Reference Method	Range	MDL	Analyzer	Sample Matrix	Cartridge PN
Acidity, total	NA	0.35–15 g/L as tartaric acid	NA	FS IV	Wine	A003132
Acidity, volatile	NA	0.15–1.5 g/L as acetic acid	NA	FS IV	Wine	A003133
Alkalinity	USEPA 310.2	10–500 mg/L as calcium carbonate	2.1 mg/L at 10–200 mg/L; 3 mg/L at 25–500 mg/L	FS IV	Drinking water, wastewater	FIA/SFA: 320182
Ammonia nitrogen	USEPA 350.1	0.5–10.0 mg/L 0.1–5.0 mg/L 0.02–2.0 mg/L	0.127 mg/L 0.022 mg/L 0.007 mg/L	DA 3500	Drinking water, wastewater	NA
Ammonia nitrogen	USEPA 350.1	0.01–25 mg/L as nitrogen	0.002 mg/L	FS IV	Drinking water, wastewater	SFA: 321053 FIA: 319800
Ammonia nitrogen, on-line distillation, gas diffusion	USEPA 350.1	0.1–5.0 mg/L as nitrogen	0.03 mg/L	FS IV	Drinking water, wastewater	322684
Ammonia nitrogen	based on USEPA 350.1	0.1–5.0 µM as nitrogen	0.077 µM	FS IV	Seawater	A002602
Ammonia nitrogen, SFA	based on USEPA 351.2	0.2–250 mg/L as nitrogen	0.01 mg/L	FS IV	Soil, plant	A002617
Ammonia nitrogen, FIA	based on USEPA 351.2	1–150 mg/L as nitrogen	0.2 mg/L	FS IV	Soil, plant	322149
Ammonium nitrogen	DIN 38406	0.1–10 mg/L as nitrogen	0.05 mg/L	FS IV	Drinking water, wastewater	A002704
Amylose	NA	1–500 mg/L	0.08 mg/L	FS IV	Rice extracts	A002852
Anionic surfactants	SM 2120 B	0.03–5.0 mg/L as sodium dodecyl sulfate	0.005 mg/L	FS IV	Drinking water, wastewater	A002705
Base, volatile	China National Standards	0.02–0.40% as ammonia	0.01%	FS IV	Tobacco	322144
Boron	NA	0.2–20 mg/L	0.02 mg/L	FS IV	Drinking water, wastewater	319708
Bromide	NA	0.20–10 mg/L	0.10 mg/L	FS IV	Drinking water, wastewater	A002706
Chloride	SM 4500-Cl^- E	5–50 mg/L	0.9 mg/L	DA 3500	Drinking water, wastewater	NA
Chloride	USEPA 325.2	1.0–200 mg/L	0.31 mg/L	FS IV	Drinking water, wastewater	SFA: 320178 FIA: A002601
Chloride	China National Standards	5.0–200 mg/L	1.2 mg/L	FS IV	Tobacco	320752
Chromium, hexavalent	SM 3500-Cr B	0.05–1.0 mg/L	0.009 mg/L	DA 3500	Drinking water, wastewater	NA
Chromium, hexavalent	per USEPA 7196A	0.01–2.5 mg/L	0.004 mg/L	FS IV	Drinking water, wastewater	A002679
Color	SM 2120 B	5.0–25 color units	0.6 color units	FS IV	Drinking water, wastewater	319447
Cyanide, total, on-line distillation, UV digestion	USEPA 335.3	5.0–500 µg/L	1.5 µg/L	FS IV	Drinking water, wastewater	A002599
Cyanide, total, post-distillation	USEPA 335.4	5.0–500 µg/L	2.6 µg/L	FS IV	Drinking water, wastewater	A002692
Cyanide, available	USEPA OIA-1677	2.0 µg/L–5.0 mg/L	0.5 µg/L	FS IV	Drinking water, wastewater	319786

Analyte	Reference Method	Range	MDL	Analyzer	Sample Matrix	Cartridge PN
Cyanide, available	USEPA OIA-1677, ASTM D6888-04	2.0 µg/L–5.0 mg/L	0.5 µg/L	FS 3100	Drinking water, wastewater	NA
Cyanide, total, post-distillation	USEPA 335.2, 335.4, ASTM D2036	5.0–500 µg/L	0.5 µg/L	FS 3100	Drinking water, wastewater	NA
Cyanide, total	USEPA 335.2	0.05–0.5 mg/L	0.01 mg/L	DA 3500	Drinking water, wastewater	NA
Cyanide, total, UV digestion, gas diffusion	ASTM D6888-04	2.0 µg/L–5.0 mg/L	0.5 µg/L	FS 3100	Drinking water, wastewater	NA
Fluoride	USEPA 340.2	0.2–8.0 mg/L	0.005 mg/L	FS IV	Drinking water, wastewater	A002677
Hardness	USEPA 130.1	30–400 mg/L as calcium carbonate; 5–100 mg/L	2.0 mg/L; 0.5 mg/L	FS IV	Drinking water, wastewater	A002711
Iron, total	NA	0.1–5.0 mg/L	0.01 mg/L	FS IV	Drinking water, wastewater	A002712
Nicotine	NA	4.0–200 mg/L	1.0 mg/L	FS IV	Plant, tobacco	A002714
Nicotine	China National Standards	5.0–200 mg/L	0.5 mg/L	FS IV	Tobacco	320754
Nitrate-nitrite nitrogen	USEPA 353.2	0.005–10.0 mg/L as nitrogen	0.001 mg/L	FS IV	Drinking water, wastewater	A002670
Nitrate-nitrite nitrogen	ISO 13395:1996 (E)	0.01–20 mg/L as nitrogen	0.001 mg/L	FS IV	Drinking water, wastewater	322137
Nitrate-nitrite nitrogen	based on USEPA 353.2	0.02–40 µM as nitrogen	0.007 µM	FS IV	Seawater	A002603
Nitrate-nitrite nitrogen, SFA	based on USEPA 353.2	0.1–50 mg/L as nitrogen	0.004 mg/L	FS IV	Soil, plant	A002690
Nitrate-nitrite nitrogen, FIA	based on USEPA 353.2	1–100 mg/L as nitrogen	0.05 mg/L	FS IV	Soil, plant	322678
Nitrite nitrogen	SM 4500-NO_2^- B	0.01–0.50 mg/L	0.002 mg/L	DA 3500	Drinking water, wastewater	NA
Nitrogen, total	based on AOAC 976.06	3.0–150 mg/L as nitrogen	1.0 mg/L	FS IV	Animal feed	A002726
Nitrogen, total dissolved, UV digestion	based on USEPA 353.2	0.10–10 mg/L as nitrogen	0.02 mg/L	FS IV	Drinking water, wastewater	319784
Nitrogen, total Kjeldahl	USEPA 351.2	0.5–10 mg/L	0.1 mg/L	DA 3500	Drinking water, wastewater	NA
Nitrogen, total Kjeldahl	USEPA 351.2	0.2–20 mg/L as nitrogen; 0.05–10 mg/L	0.01 mg/L	FS IV	Drinking water, wastewater	A002597
Nitrogen, total Kjeldahl	based on USEPA 351.2	0.2–250 mg/L as nitrogen	0.01 mg/L	FS IV	Soil, plant	A002617
Nitrogen, total Kjeldahl	China National Standards	0.5–50 mg/L as nitrogen; 5.0–200 mg/L	0.1 mg/L	FS IV	Tobacco	320753
Nitrogen, total oxidized	USEPA 353.1	0.1–5.0 mg/L	0.03 mg/L	DA 3500	Drinking water, wastewater	NA
Orthophosphate	SM 4500-P E	0.05–1.0 mg/L	0.019 mg/L	DA 3500	Drinking water, wastewater	NA
Orthophosphate	based on USEPA 365.1	1 µg/L–1.0 mg/L as phosphorus	0.266 µg/L	FS IV	Drinking water, wastewater	319532
Orthophosphate	USEPA 365.1	0.01–1 mg/L as phosphorus	0.001 mg/L	FS IV	Drinking water, wastewater	A002596
Orthophosphate	based on USEPA 365.1	0.02–10 µM as phosphorus	0.009 µM	FS IV	Seawater	A002604
Orthophosphate	based on USEPA 365.1	100–700 mg/L	0.05 mg/L	FS IV	Soft drinks	320434
Orthophosphate, SFA	based on USEPA 365.1	0.2–100 mg/L as phosphorus	0.02 mg/L	FS IV	Soil, plant	A002678

Analyte	Reference Method	Range	MDL	Analyzer	Sample Matrix	Cartridge PN
Orthophosphate, FIA	based on USEPA 365.1	1–100 mg/L as phosphorus	0.1 mg/L	FS IV	Soil, plant	322681
Orthophosphate	based on USEPA 365.1	10–700 mg/L	0.05 mg/L	FS IV	Water	320771
Orthophosphate, total acid hydrolyzable	USEPA 365.3	0.05–1.0 mg/L	0.014 mg/L	DA 3500	Drinking water, wastewater	NA
Phenol	USEPA 420.1	0.5–5.0 mg/L	0.052 mg/L	DA 3500	Drinking water, wastewater	NA
Phenol	USEPA 420.2	0.1–2.0 mg/L	0.025 mg/L	DA 3500	Drinking water, wastewater	NA
Phenol, on-line distillation	USEPA 420.2	5.0–500 µg/L	1.0 µg/L	FS IV	Drinking water, wastewater	A002606
Phenol, post-distillation	USEPA 420.2	5.0–500 µg/L	1.0 µg/L	FS IV	Drinking water, wastewater	319431
Phosphorus, total	USEPA 365.1	0.02–20 mg/L as phosphorus	0.005 mg/L	FS IV	Drinking water, wastewater	A002596
Phosphorus, total	NA	20–450 mg/L as phosphorus	NA	FS IV	Fertilizer	321069
Phosphorus, total	based on USEPA 365.1	0.2–100 mg/L as phosphorus	0.03 mg/L	FS IV	Soil, plant	A002678
Phosphorus, total dissolved, UV digestion	USEPA 365.1	0.10–10 mg/L as phosphorus	0.019 mg/L	FS IV	Drinking water, wastewater	319785
Potassium	NA	0.5–100 mg/L	0.1 mg/L	FS IV	Drinking water, wastewater	A001334
Silica	NA	0.35–35 µM Si (silicon) as silica	0.071 µM	FS IV	Seawater	A002605
Silica	USEPA 370.1	2.0–20.0 mg/L	0.6 mg/L	DA 3500	Drinking water, wastewater	NA
Silica	based on SM 4500-Si F	0.1–60 mg/L Si (silicon) as silica	0.014 mg/L	FS IV	Drinking water, wastewater	A002600
Starch	NA	10–5,000 mg/L	0.5 mg/L	FS IV	Tobacco leaf extracts	320184
Sugars, reducing	NA	50–1,500 mg/L	1.5 mg/L	FS IV	Plant, tobacco	A002719
Sugars, total and reducing	China National Standards	Total: 100–3,000 mg/L; Reducing: 100–3,000 mg/L	Total: 14.0 mg/L; Reducing: 12.0 mg/L	FS IV	Tobacco	320751
Sugars, reducing	NA	0.15–10 g/L; 1.0–200 g/L as glucose and fructose	NA	FS IV	Wine	A003129
Sugars, total	NA	5.0 - 500 mg/L as sucrose	1.0 mg/L	FS IV	Plant, tobacco	A002813
Sulfate	based on USEPA 375.2	2.0–200 mg/L	1.61 mg/L	FS IV	Drinking water, wastewater	A002598
Sulfate	SM 4500-SO_4^{2-}	5–50 mg/L	0.8 mg/L	DA 3500	Drinking water, wastewater	NA
Sulfide	Hach method modified from SM 4500-S^{2-} D	0.1–2.0 mg/L	0.026 mg/L	DA 3500	Drinking water, wastewater	NA
Sulfide	USEPA 376.2	0.20–20 mg/L	0.04 mg/L	FS IV	Drinking water, wastewater	A002724
Sulfite	NA	0.20–30 mg/L	0.052 mg/L	FS IV	Drinking water, wastewater	A002725
Sulfite, total	NA	6.0–300 mg/L	NA	FS IV	Wine	A003131
Turbidity	USEPA 180.1	10–200 NTU	7 NTU	DA 3500	Drinking water, wastewater	NA
Urea	NA	0.1–1.0 mg/L	0.003 mg/L	FS IV	Drinking water, wastewater, seawater	A002999

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