

Calscience Environmental Laboratories, Inc.
US EPA Methods Update Rule (MUR) List of Approved Inorganic Test Procedures

Notes:

a) List is compiled based on 40 CFR Part 136 Table IB and the changes in US EPA Methods Update Rule (MUR) effective on April 11, 2007.

b) Test methods deleted are shown in red font; test methods added are shown in blue font.

Parameter	Methodology	EPA	Standard methods (20th)	ASTM
1. Acidity, as CaCO ₃ , mg/L	Electrometric endpoint or phenolphthalein endpoint	305.1	2310 B (4a)	
2. Alkalinity, as CaCO ₃ , mg/L	Electrometric titration to pH 4.5, manual	310.1	2320 B	
3. Aluminum–Total, mg/L	Digestion followed by: ICP/AES ICP/MS	200.7, Rev. 4.4 (1994) 200.8, Rev. 5.4 (1994)		
4. Ammonia (as N), mg/L	Manual, distillation (at pH 9.5) followed by: Titration Electrode Automated phenate	350.1, Rev. 2.0 (1993) 350.2 350.3 350.1, Rev. 2.0 (1993)	4500–NH ₃ B 4500–NH ₃ C 4500–NH ₃ D 4500–NH ₃ G	
5. Antimony–Total, mg/L	Digestion followed by: ICP/AES ICP/MS	200.7, Rev. 4.4 (1994) 200.8, Rev. 5.4 (1994)		
6. Arsenic–Total, mg/L	Digestion followed by: ICP/AES ICP/MS	200.7, Rev. 4.4 (1994) 200.8, Rev. 5.4 (1994)		
7. Barium–Total, mg/L	Digestion followed by: ICP/AES ICP/MS	200.7, Rev. 4.4 (1994) 200.8, Rev. 5.4 (1994)		
8. Beryllium–Total, mg/L	Digestion followed by: ICP/AES ICP/MS	200.7, Rev. 4.4 (1994) 200.8, Rev. 5.4 (1994)		
9. Biochemical oxygen demand (BOD ₅), mg/L	Dissolved Oxygen Depletion	405.1	5210 B	
10. Boron–Total, mg/L	Digestion followed by: ICP/AES	200.7, Rev. 4.4 (1994)		
11. Bromide, mg/L	Ion Chromatography	300.0, Rev. 2.1 (1993)		
12. Cadmium–Total, mg/L	Digestion followed by: ICP/AES ICP/MS	200.7, Rev. 4.4 (1994) 200.8, Rev. 5.4 (1994)		
13. Calcium–Total, mg/L	Digestion followed by: ICP/AES	200.7, Rev. 4.4 (1994)		
14. Carbonaceous biochemical oxygen demand (CBOD ₅), mg/L	Dissolved Oxygen Depletion with nitrification inhibitor		5210 B	
15. Chemical oxygen demand (COD), mg/L	Titrimetric Spectrophotometric, manual or automatic	410.1 410.4, Rev. 2.0 (1993)	5220 C 5220 D	
16. Chloride, mg/L	Titrimetric, mercuric nitrate Ion Chromatography	325.3 300.0, Rev. 2.1 (1993)	4500–Cl ⁻ C	
17. Chlorine–Total residual, mg/L	Titrimetric, DPD–FAS Spectrophotometric, DPD	330.4 330.5	4500–Cl F 4500–Cl G	
18. Chromium VI dissolved, mg/L	Ion Chromatography Colorimetric (Diphenyl–carbazine)	218.6, Rev. 3.3 (1994)	3500–Cr B	
19. Chromium–Total, mg/L	Digestion followed by: ICP/AES ICP/MS Colorimetric (Diphenyl–carbazine)	200.7, Rev. 4.4 (1994) 200.8, Rev. 5.4 (1994)	3500–Cr B	
20. Cobalt–Total, mg/L	Digestion followed by: ICP/AES ICP/MS	200.7, Rev. 4.4 (1994) 200.8, Rev. 5.4 (1994)		
21. Color	Colorimetric (ADMI) Colorimetric (Platinum cobalt)	110.1 110.2	2120 E 2120 B	

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22. Copper–Total, mg/L	Digestion followed by: ICP/AES ICP/MS	200.7, Rev. 4.4 (1994) 200.8, Rev. 5.4 (1994)		
23. Cyanide–Total, mg/L	Manual distillation with MgCl ₂ followed by: Spectrophotometric, manual	335.2	4500–CN [–] C 4500–CN [–] E	
24. Cyanide–Amenable to chlorination, mg/L	Manual distillation with MgCl ₂ followed by: Spectrophotometric, manual		4500–CN [–] G	
25. Fluoride–Total, mg/L	Manual distillation followed by: Electrode, manual	340.2	4500–F [–] B	
27. Hardness–Total, as CaCO ₃ , mg/L	Titrimetric (EDTA)	130.2	2340 C	
28. Hydrogen ion (pH), pH units	Electrometric measurement	150.1	4500–H ⁺ B	
30. Iron–Total, mg/L	Digestion followed by: ICP/AES Colorimetric (Phenanthroline)	200.7, Rev. 4.4 (1994)	3500–Fe B	
31. Kjeldahl Nitrogen–Total, (as N), mg/L	Digestion and distillation followed by: Titration Semi-automated block digester colorimetric	351.3 351.3 351.2, Rev. 2.0 (1993)	4500–N _{org} B or C and 4500–NH ₃ B 4500–NH ₃ C	
32. Lead–Total, mg/L	Digestion followed by: ICP/AES ICP/MS	200.7, Rev. 4.4 (1994) 200.8, Rev. 5.4 (1994)		
33. Magnesium–Total, mg/L	Digestion followed by: ICP/AES	200.7, Rev. 4.4 (1994)		
34. Manganese–Total, mg/L	Digestion followed by: ICP/AES ICP/MS	200.7, Rev. 4.4 (1994) 200.8, Rev. 5.4 (1994)		
35. Mercury–Total, mg/L	Cold vapor, manual	245.1, Rev. 3.0 (1994)		
36. Molybdenum–Total, mg/L	Digestion followed by: ICP/AES ICP/MS	200.7, Rev. 4.4 (1994) 200.8, Rev. 5.4 (1994)		
37. Nickel–Total, mg/L	Digestion followed by: ICP/AES ICP/MS	200.7, Rev. 4.4 (1994) 200.8, Rev. 5.4 (1994)		
38. Nitrate (as N), mg/L	Ion Chromatography	300.0, Rev. 2.1 (1993)		
39. Nitrate-nitrite (as N), mg/L	Cadmium reduction, manual Ion Chromatography	353.3 300.0, Rev. 2.1 (1993)	4500–NO ₃ [–] E	
40. Nitrite (as N), mg/L	Spectrophotometric, manual Ion Chromatography	354.1 300.0, Rev. 2.1 (1993)	4500–NO ₂ [–] B	
41. Oil and grease–Total recoverable, mg/L	Hexane extractable material (HEM): n-Hexane extraction and gravimetry Silica gel treated HEM (SGT-HEM): Silica gel treatment and gravimetry	1664A 1664A	5520 B	
42. Organic carbon–Total (TOC), mg/L	Combustion or oxidation	415.1	5310 B, C, or D	
43. Organic nitrogen (as N), mg/L	Total Kjeldahl N (Parameter 31) minus ammonia N (Parameter 4)			
44. Orthophosphate (as P), mg/L	Ascorbic acid method: Automated Manual two reagent Ion Chromatography	365.1, Rev. 2.0 (1993) 365.3 (1978) 300.0, Rev. 2.1 (1993)	4500–P F	
46. Oxygen, dissolved, mg/L	Winkler (Azide modification) Electrode	360.2 360.1	4500–O C 4500–O G	

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48. Phenols, mg/L	Manual distillation followed by: Colorimetric (4AAP), manual	420.1 (1978) 420.1 (1978)		
50. Phosphorus–Total, mg/L	Persulfate digestion followed by: Manual Automated ascorbic acid reduction	365.2 365.3 (1978) 365.1, Rev. 2.0 (1993)	4500–P B.5 4500–P E 4500–P F	
52. Potassium–Total, mg/L	Digestion followed by: ICP/AES	200.7, Rev. 4.4 (1994)		
53. Residue–Total, mg/L	Gravimetric, 103–105°C	160.3	2540 B	
54. Residue–Filterable (TDS), mg/L	Gravimetric, 180°C	160.1	2540 C	
55. Residue–Non-filterable (TSS), mg/L	Gravimetric, 103–105°C post washing of residue	160.2	2540 D	
56. Residue–Settleable, mg/L	Volumetric (Imhoff cone)	160.5	2540 F	
57. Residue–Volatile, mg/L	Gravimetric, 550°C	160.4		
60. Selenium–Total, mg/L	Digestion followed by: ICP/AES ICP/MS	200.7, Rev. 4.4 (1994) 200.8, Rev. 5.4 (1994)		
61. Silica–Dissolved, mg/L	Digestion followed by: ICP/AES	200.7, Rev. 4.4 (1994)		
62. Silver–Total, mg/L	Digestion followed by: ICP/AES ICP/MS	200.7, Rev. 4.4 (1994) 200.8, Rev. 5.4 (1994)		
63. Sodium–Total, mg/L	Digestion followed by: ICP/AES	200.7, Rev. 4.4 (1994)		
64. Specific conductance, micromhos/cm at 25°C	Wheatstone bridge	120.1 (1982)	2510 B	
65. Sulfate (as SO ₄), mg/L	Turbidimetric Ion Chromatography	375.4 300.0, Rev. 2.1 (1993)		D516–02
66. Sulfide (as S), mg/L	Colorimetric (methylene blue)	376.2	4500–S ²⁻ D	
67. Sulfite (as SO ₃), mg/L	Titrimetric (iodine-iodate)	377.1	4500–SO ₃ ²⁻ B	
68. Surfactants, mg/L	Colorimetric (methylene blue)	425.1	5540 C	
69. Temperature, °C	Thermometric	170.1	2550 B	
70. Thallium–Total, mg/L	Digestion followed by: ICP/AES ICP/MS	200.7, Rev. 4.4 (1994) 200.8, Rev. 5.4 (1994)		
71. Tin–Total, mg/L	Digestion followed by: ICP/AES	200.7, Rev. 4.4 (1994)		
73. Turbidity, NTU	Nephelometric	180.1, Rev. 2.0 (1993)	2130 B	
74. Vanadium–Total, mg/L	Digestion followed by: ICP/AES ICP/MS	200.7, Rev. 4.4 (1994) 200.8, Rev. 5.4 (1994)		
75. Zinc–Total, mg/L	Digestion followed by: ICP/AES ICP/MS	200.7, Rev. 4.4 (1994) 200.8, Rev. 5.4 (1994)		