

STANDARD ANALYTICAL METHODS (SOIL)

ELEMENT	DIGESTION EXTRACTANT	ANALYTICAL TECHNIQUE
Calcium	1 M Ammonium nitrate	Atomic Absorption or ICP
Magnesium	1 M Ammonium nitrate	Atomic Absorption or ICP
Manganese	1 M Ammonium acetate with 2 g/l quinol	Atomic Absorption or ICP
Boron	Hot water (80°C)	Solution spectrophotometry after complexing with azomethine or ICP
Copper	0.05 M EDTA disodium salt	Atomic Absorption or ICP
Molybdenum	Ammonium acetate (24.9 g/l) + oxalic acid (12.6 g/l)	Atomic Absorption with nitrous oxide or ICP
Iron	0.05 M EDTA disodium salt	Atomic Absorption or ICP
Zinc	0.05 M EDTA disodium salt	Atomic Absorption or ICP
Cobalt	0.05 M EDTA disodium salt	Atomic Absorption or ICP
Iodine	Hot water (80°C)	Ion specific electrode
Phosphorus	OLSEN (sodium hydrogen carbonate)	Solution spectrophotometry after complexing with ammonium molybdate
Potassium	1 M Ammonium nitrate	Flame emission spectrometry or ICP
Sulphur	Calcium tetrahydrogen Diorthophosphate	Solution spectrophotometry of precipitated barium sulphate or ICP
pH	Water	pH electrode/meter
Organic Matter	WALKLEY BLACK (oxidation of organic matter with potassium dichromate + sulphuric acid) OR DUMAS METHOD	Spectrophotometry CNS analyser
Nitrogen	Sulphuric/orthophosphoric acid digestion OR DUMAS METHOD	Kjeldhal distillation CNS analyser
CEC	By Calculation	
CaCO ₃ Total	Conc. Hydrochloric acid	Volume of CO ₂ released
CaCO ₃ Active	Drouineau Galet (ammonium oxalate)	Titration with K permanganate after addition of 5% sulphuric acid
EC Electrical Conductivity	Water or calcium sulphate	Conductivity meter
Nitrate	Water or calcium sulphate	Colourimetric Analyser

ALL METHODS (EXCEPT FOR NITROGEN WHICH IS TOTAL AND MANGANESE WHICH IS EASILY REDUCIBLE) DETERMINE THE LEVELS OF AVAILABLE NUTRIENTS.

ICP Inductively Coupled Plasma Analyser
CNS Carbon/nitrogen/sulphur Dumas combustion analyser