

Mehlich-3 Soil Extract Analysis

SC-FAST for Soils

7 second method

Optimization of the sample introduction system of the Optima 5300DV ICPAES system using the SC-FAST for Soils, results in a breakthrough in throughput and accuracy for soil extract analysis.

The SC-FAST for Soils is a complete sample introduction system including a high speed SC Autosampler, injection valve, PFA nebulizer, mini cyclonic spray chamber and injector to produce a robust method capable of measuring the 11 elements in the Mehlich-3 soil extract in 7 seconds.



High Speed SC-FAST Autosampler for Soils is available in 3 formats:

- SC-2 240 sample capacity
- SC-4 360 sample capacity
- SC-14 1260 sample capacity



Injection Valve, PFA
Nebulizer & Cyclonic
MiniChamber

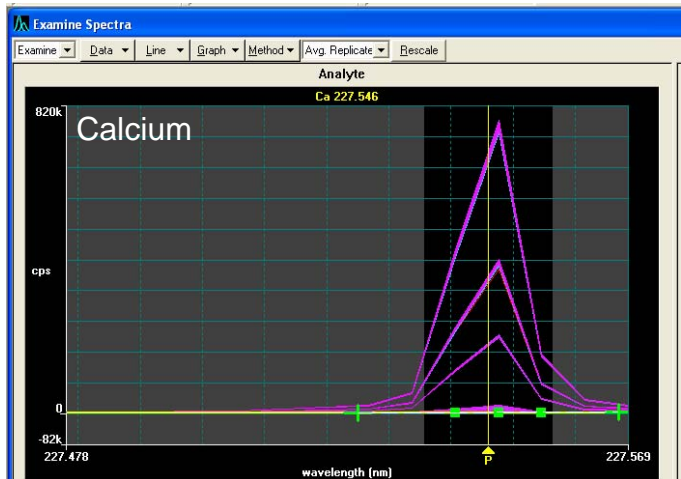
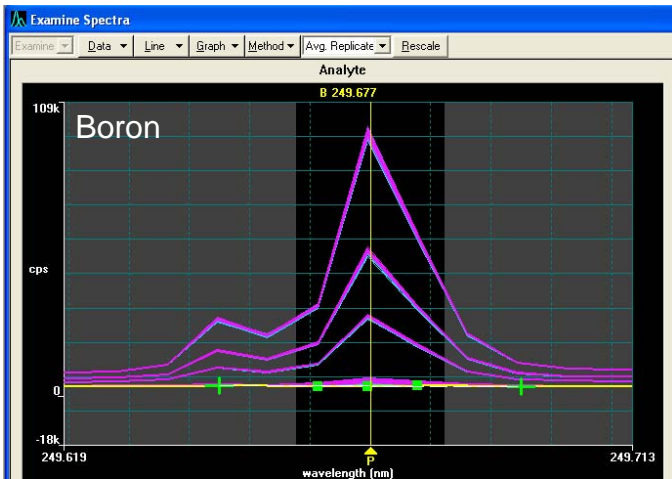
Sampling Procedure:

- Sample transferred from vial to 0.1 mL sample loop in 0.5 second then injected
- ICP read delay time 1 second
- During ICP read the sample probe moves above the next sample
- 11 elements determined in total analysis time of 7 seconds per sample.

- Over 500 samples and standards analyzed per hour.

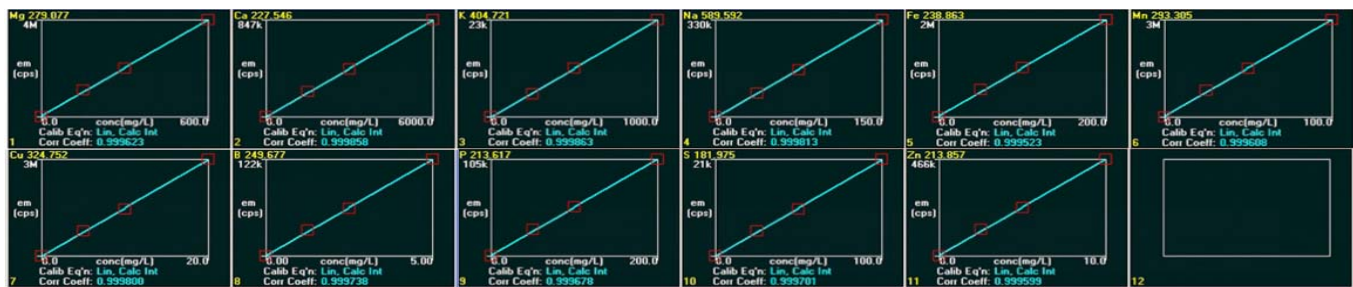


Reproducibility



244 spectral overlays for boron (61 each of blank, 1.25ppm, 2.5ppm, and 5ppm standards) and calcium (61 each of blank, 1000ppm, 3000ppm & 6000ppm standards) showing excellent reproducibility.

Calibration



4 point calibrations for all 11 elements showing excellent linearity (Corr. Coeff. > 0.999)

Recovery

Element	Spike (ppm)	Measured	% Recovery	Element	Spike (ppm)	Measured	% Recovery
Mg	600	590	98	Cu	20	19.8	99
Ca	6000	5934	99	B	5	5.0	100
K	1000	968	97	P	200	200	100
Na	150	153	102	S	100	99	99
Fe	200	197	98	Zn	10	9.8	98
Mn	100	99	99	Spiked Mehlich Extraction Solution			

High Speed Analysis

Standard Sample Introduction 17 seconds

SC-FAST for Soils 7 seconds

2.5 fold improvement

Full turnkey method developed including installation for rapid implementation

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