

# CTX Quick Check App



## Inorganic Fertilizers

Fertilizers are critical to healthy, high-yield crops. Portable XRF helps confirm mineral content of their raw materials and end products; prove efficacy and value of custom blends; screen for unwanted heavy metals; and pre-screen samples for difficult elements in lab analysis.

X-ray Fluorescence (XRF) analysis is a simple, quick, and non-destructive method to measure the elemental content of fertilizer blends and their starting materials. Portable XRFs (PXRF) enable analysis of mineral content and screening for heavy metals anywhere it's needed - from starting materials to application in the field.

### Bruker's Portable CTX™



- Small, lightweight battery operated portable XRF analyzer
- 7.1 kg (15.6 lbs) with battery
- 13.5 cm x 25 cm x 35 cm WxDxH (5.3 in x 9.8 in x 13.8 in)
- Operating temperature: -10° C to +40° C (+14° F to 104° F)
- Splash / dust proof (IP-54) stainless steel housing for use in rugged conditions
- Sample chamber: 12 cm x 13.5 cm x 8.5 cm WxDxH (4.7 in x 5.3 in x 3.3 in)

### Portable XRF for fast QA/QC of fertilizers

Fertilizers are varied in base material; however, most commercial bulk products contain substantial amounts of nitrogen, phosphorus, potassium, or sulfur. Custom blends utilize a mix of different minerals which provide the ability for farmers to fine-tune their fertility program moving towards more efficient and profitable crop production. Specialty fertilizers with mixes of calcium, magnesium, iron, cobalt, chromium, copper, manganese, selenium, zinc, and molybdenum provide even more selectability.

### Custom Solids Fertilizer Calibration

Bruker's work with a non-profit fertilizer development group resulted in the development of a robust inorganic solids fertilizer calibration with good correlation to ICP measurements. It covers macro and micronutrients, with the exception of nitrogen, as well as heavy metals. Although there is no intention to put heavy metals in fertilizers, they can be present if starting materials contain them. This PXRF calibration can be expanded using customer reference materials. Contact us directly for custom liquid and organic based fertilizer calibrations.

#### Custom solids fertilizer elemental calibration ranges

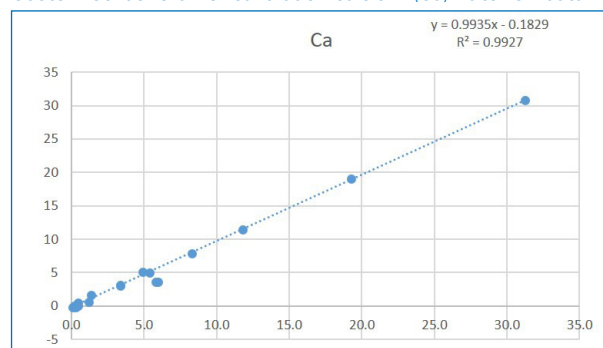
Element	P	Mg	S	Cl
Range (%)	0.03 - 20.3	0.1 - 11.4	0.2 - 22.6	0 - 16.3

Element	K	Ca	Cr	Mn
Range (%)	0.2 - 18.9	0.02 - 31.1	0 - 0.07	0.002 - 7.4

Element	Fe	Co	Ni	Cu
Range (%)	0.06 - 14.8	0 - 0.053	0 - 0.54	0 - 12.6

Element	Zn	As	Se	Mo	Pb
Range (%)	0.002 - 7.0	0 - 0.017	0 - 0.025	0 - 0.058	0 - 0.05

#### Custom solids fertilizer calibration calcium (Ca) fit to ICP data



**Bruker Portable XRF Elemental Analyzers:** *Simultaneously measure elements from sodium (Na) to uranium (U) at concentrations as low as parts-per-million to high percentage levels (depending on the element). Objects of any form – liquid, solid, cores, powder, shavings, chips – can be analyzed wherever they are located.*

Bruker's portable XRF analyzers are primarily used for quantitative analysis utilizing installed calibrations with like-sample standard reference materials. Results can be given as composition or Pass/Fail/Inconclusive for single or multi-elemental analysis of elements from Na to U, depending on the model. Spectra is always being collected with each measurement enabling live viewing or subsequent retrieval of stored data. Researchers primarily use this data to identify the presence of elements or to track estimates and/or ratios of elements of interest for qualitative or semi-quantitative work.

The convenient form factor of Bruker's CTX is ideal for samples presented in containers such as powders, soils and liquids; small samples; and those which require extended measurements of more than a few seconds.

Handheld XRFs enable in-situ measurements; in other words, they are "point-and-shoot" analyzers. An optional desk or bench top stand with a PC is typically used for samples presented in containers such as powders, soils and liquids; small samples; and those which require extended measurements of more than a few seconds.

**Bruker's portable XRF features:**

- Rh X-ray tube with high performance SDD detector
- 5 filter wheel (plus manual slot for TRACER 5)
- SharpBeam geometry for high performance, speed and sensitivity
- Touchscreen operation
- Internal camera (optional for CTX and TITAN)
- Wireless communication
- Battery or AC operation
- Lightweight and supplied with water tight transport case; Optional backpack for CTX
- Optional PC software available for qualitative analysis (Artax) or user generated calibrations (EasyCal)
- Optional factory installed calibrations available for various models including applications for:
  - Precious Metals
  - Alloys
  - Metals in Oil
  - Coatings
  - Hg Contamination
  - Mudrock, GeoExploration
  - Limestone
  - Heavy Metals & Nutrients in Soil
  - Restricted Materials (RoHS)
  - Food Quality
  - Plant Materials
  - Maritime Sulfur
  - Industrial Lead in Paint
  - Filter & Dust Wipes
  - Glass
  - Ancient Copper Alloys
  - Custom factory calibrations are also available



**CTX™ Portable XRF analyzer**  
Mg (12) to U (92)



**TRACER 5**  
Handheld XRF analyzer  
Na (11) to U (92)



**S1 TITAN**  
Handheld XRF analyzer  
Mg (12) to U (92)

Contact Us at [www.bruker.com/hhxf](http://www.bruker.com/hhxf)

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