



## CTX™

- **CounterTop XRF**  
Portable XRF  
Self Contained, Safety Interlocked

Innovation with Integrity

Portable XRF



Your Complete Source for  
Testing Equipment Since 1969!

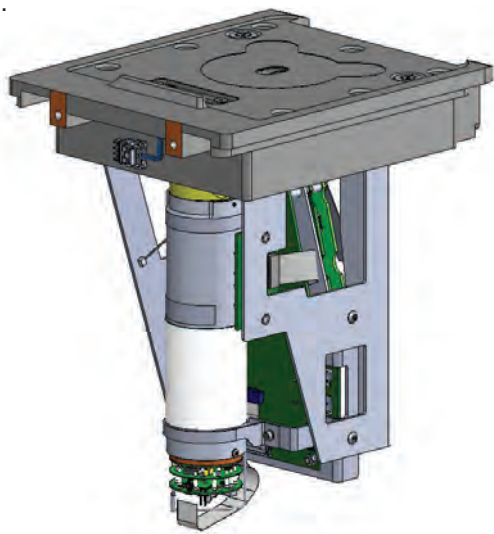
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# Portable, Safety Interlocked XRF Analyzer

## TECHNOLOGY

Energy dispersive X-ray fluorescence (EDXRF) is the CTX™ technology engine. EDXRF is like a high powered flashlight which sees beyond what humans can. When the light source is turned on to illuminate a sample, it 'sees' the energy of any elements present, from elements as light as magnesium (Mg) to those as heavy as uranium (U). It also 'senses' how much of those elements are present by their energy's magnitude. When the CTX™ illuminates a sterling silver coin, it detects silver (Ag) at 22.163 keV and copper (Cu) at 8.046 keV; and, it determines the coin's composition to be 92.5% Ag and 7.5% Cu.



- Rhodium (Rh) thin window X-ray tube; 6-50kV with max 4 Watt output
- Silicon Drift Detector (SDD) with <math>< 145\text{eV}</math> resolution @ 250,000 cps Mn K $\alpha$
- Collimation of 5 mm (std); 8 or 3 mm (opt)
- Automated 5 position pre-installed primary beam filters
- Elemental detection range from magnesium (Mg) to uranium (U)
- Detects concentrations from PPM to 100%

*Above specifications are for CTX model 800.  
Check page 8 for specifications of other models.*

## SAFETY

Portable XRF analyzers are ideal to measure solids, powders and liquids when simple, fast and accurate testing is needed outside the lab. Handheld XRF provides the benefit of performing insitu measurements. However, the self-contained CTX™ is more convenient than a handheld XRF setup in a benchtop stand for applications which require sample preparation; those presented in containers such as powders, soils and liquids; and those which require extended measurements of more than just a few seconds. It is also ideal for organizations or locations with strict open beam portable XRF regulations.



- Double safety interlocks
- Fully lit indicators viewable from every angle
- Amber lights for 'X-rays ready' and red lights for 'X-rays on'
- Sample sensor
- Password protected
- Radiation warning notice at start-up of system prior to use
- Power switch at rear of system

# Portable, Safety Interlocked XRF Analyzer

## DESIGN

The CTX™ is all about high performance EDXRF in a small, lightweight and sleek, portable configuration. The durable stainless steel body withstands all environmental conditions and is easy to clean. At under 7.5 kg and less than 27 cm high, the CTX™ is truly portable and takes up very little space on any surface. The CTX™ fits securely into its standard Pelican case and optional protective backpack. All user operation is through a front panel touchscreen display or an optional PC via Wi-Fi or USB. Connections are within easy reach under the display. Samples can be placed as-is inside a safety chamber with ample room or in sample cups, baggies or other containers.



- Weight: 7.1 kg (15.6 lbs) with battery
- Dimensions: 13.5 cm x 25 cm x 35 cm (5.3 in x 9.8 in x 13.8 in) WxDxH
- High performance and contrast daylight visible LCD 3.7in touchscreen display
- 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 (4.7 in x 5.3 in x 3.3 in) WxDxH

## PERFORMANCE

The CTX™ delivers accurate and reproducible results with speed and ease. Ready-to-go factory calibrations are available for a variety of applications including food safety & quality, plant & soil health, natural resource exploration, alloy & precious metal identification and regulated sulfur in marine fuel. Samples are placed in the chamber as-is or in sample cups, baggies or other sample containers. The completely sealed sample plate protects the CTX™ from spills and the TITAN Detector Shield™ protects the detector; both providing long term performance without downtime interruption.

A screenshot of the CTX XRF analyzer's touchscreen display. The screen shows the following information:

**Limestone**  
62 01-16 13:42  
Time 19.0

| El           | %            | +/- [*2] |
|--------------|--------------|----------|
| <b>CaCO3</b> | <b>99.34</b> | 0.24     |
| <b>SiO2</b>  | <b>0.29</b>  | 0.06     |
| <b>Al2O3</b> | <b>0.29</b>  | 0.05     |
| <b>Fe2O3</b> | <b>0.06</b>  | 0.01     |

Spectrum

- Adjustable automated X-ray voltage and current for measurement optimization
- Patented SharpBeam™ geometry for best performance at low power
- Patented DetectorShield™ for long term performance and minimal service
- Powered by Lithium-Ion battery or via 110/220V AC adapter
- Consistent sample presentation with index markings for better precision



# Applications

## Food Safety & Quality



- Perform quality analysis at critical control (QACC) points of raw materials and finished products as well as during process
- Perform hazardous analysis at critical control (HACC) points for adulterant and metallic contaminant identification
- Analyze food content for fortificants such as Fe and Ca in milk liquid and powder



## Plant & Soil Health

- Monitor heavy metals and elemental nutrients to confirm healthy, sustainable fields and effectiveness of remediation
- Analyze heavy metal and elemental nutrient uptake of plants and leaves
- Compare quality and yield of various seed brands and fertilizer mixes
- Determine elemental properties of area soil, irrigation sources and fertilizer to optimize crop quality and yield for smart farming



## Material Science and Research

- Portable, safety interlocked XRF elemental analysis for material science and research
- Research across multiple disciplines including agronomy, biology, chemistry, physics, environmental, materials and geoscience
- Provides the ultimate field portable research tool to analyze objects and materials in the field or laboratory



# Applications

## Natural Resource Exploration

- Analyze geochemistry of soil, sediment, ores, mudrock, drill cuttings, concentrates
- Measure major, trace and specialty target elements such as uranium
- Test samples in-situ or in field laboratories, trailers, ships and platforms
- Utilize Bruker's signature flexible and customizable calibrations for operations
- Collect real-time elemental data while drilling on land or on the water



## Border Patrol Stations

- Check for counterfeit materials and products
- Test minerals for export and import control and identify potential conflict minerals
- Confirm "fineness" of gold, silver, platinum and palladium for import duties
- Screen consumer products including food, plants, clothing, toys and more for restricted materials or hazardous metals

## Precious Metals Recycling



- Identify gold (Au), silver (Ag), platinum (Pt), palladium (Pd) and other valuable metals
- Determine gold karat rating
- Measure powders, slivers or large pieces
- Analyze auto-catalysts for precious metals recovery
- Immediately print results with optional Bluetooth™ portable printer

## Oil and Fuel Inspections




- Check sulfur in fuel as per MARPOL
- Monitor oil blending
- Screen wear metals in oil
- Analyze used oil



# Configurations

| Model No. | Common Ready-to-Go Calibrations<br>For a comprehensive list, please consult with your sales partner |
|-----------|---|
| 800       | Geo, Soil, Food safety, Restricted materials, Mudrock, Alloys, Precious Metals                      |
| 600       | Geo, Soil, Food safety, Restricted materials, Alloys, Precious Metals                               |
| 500S      | Marine Pollution (MARPOL) Sulfur in Fuel Inspections  |
| 500       | Precious metals, Alloys   |
| 300       | Geo, Soil, Plastics, Alloys, Precious metals  |

## PC Software Options

| PC Software   | Description  |
|---|--|
|  | <p>Toolbox PC Software is included with the CTX™ purchase. It includes Remote Control and Viewing. It also includes Bruker Instruments Tools (BIT™) which enables users to browse/view files, create folders, transfer files, generate/save/print reports. BIT™ enables supervisors to view spectra, run assays, delete/rename/overwrite files, edit libraries, manage passwords and install SW upgrades and application packages provided electronically.</p> |
|  | <p>EasyCal™ is optionally purchased PC software for user defined single phase (illumination) empirical calibrations featuring inter-element corrections. The software allows the user to also modify calibrations after data has been collected and recalculate the analysis using the modified calibration.</p>   |
|  | <p>Artax™ is optionally purchased PC software which enables live integration with the CTX™. It provides advanced qualitative, semi-quantitative and spectral matching capabilities. It incorporates normalization and Bayesian deconvolution of spectra and an empirical correlation mode. It is particularly useful for large data sets with its easy access and flexible data management of user defined libraries.</p>                                      |





# Optional Accessories



Backpack with Wheels



Bluetooth barcode scanner



Portable Bluetooth Printer



Spare Batteries



Sample Preparation and Presentation Supplies



Field Sample Pulverizer and Press Kit in Case



# Specifications

|                                    | CTX Model 800  | CTX Model 600   | CTX Model 500s  | CTX Model 500          | CTX Model 300   |
|------------------------------------|--|---|---|------------------------|---|
| <b>Dimensions</b>                  | 13.5 cm x 25 cm x 35 cm (5.3 in x 9.8 in x 13.8 in) W x D x H  |   |   |                        |   |
| <b>Weight</b>                      | 7.1 kg (15.6 lbs) with battery   |   |   |                        |   |
| <b>Power</b>                       | Rechargeable Smart Lithium Ion Battery Pack — 7.2V, 6.8Ah, 49Wh; AC adapter 100-240V, 1A, 50-60Hz  |   |   |                        |   |
| <b>Excitation source</b>           | Rh target X-ray tube; 4W max output; 6-50kV, 5-200µA Swiss- limited to 5 - 100µA   | Rh target X-ray tube; 2W max output, 15-50kV, max 100µA               | Rh target X-ray tube; 2W max output, 40kV, fixed current    |                        | Rh target X-ray tube; 2W max output, 15-50kV, 5-100µA                 |
| <b>Elemental range</b>             | Mg - U   |   |   | Ti - U                 | Cl - U  |
| <b>Collimation</b>                 | 5 mm standard; 8 or 3 mm optional  | 5mm   |   |                        |   |
| <b>Filters</b>                     | Five (5) position automatic filter changer with pre-installed filters  | Five (5) position automatic filter changer with pre-installed filters | No filter   | Optimized fixed filter | Five (5) position automatic filter changer with pre-installed filters |
| <b>Detector</b>                    | Large area silicon drift detector (SDD) with < 145 eV resolution @ 250,000 cps Mn Kα; TITAN Detector Shield  |   | SDD detector with <179 eV resolution; TITAN Detector Shield |                        | Si-PIN detector with <195 eV resolution; TITAN Detector Shield        |
| <b>Geometry</b>                    | Features patented SharpBeam™ beam path for best performance at low power   |   |   |                        |   |
| <b>Sample chamber</b>              | 12 cm x 13.5 cm x 8.5 cm (4.7 in x 5.3 in x 3.3 in) W x D x H  |   |   |                        |   |
| <b>Sample camera</b>               | Optional   |   | Not Available   |                        | Optional  |
| <b>Touchscreen display</b>         | 9.4 cm (3.7 in) high contrast industrial touchscreen LCD   |   |   |                        |   |
| <b>System safety</b>               | Password protection, lid safety interlock, X-ray warning lights  |   |   |                        |   |
| <b>Control software</b>            | Full control OS on analyzer and on PC software (Windows® operating system)   |   |   |                        |   |
| <b>Analysis software</b>           | Live spectra on analyzer; live spectra and full qualitative, semi-quantitative and quantitative software on PC (Artax™ and EasyCal™ software optional)                                   |   |   |                        |   |
| <b>Data storage &amp; transfer</b> | Internal and USB data storage, USB port for data transfer, Wi-Fi and Bluetooth connectivity  |   |   |                        |   |
| <b>Languages</b>                   | Chinese, Chinese simplified, Dutch, English, French, French Canadian, German, Indonesian, Italian, Japanese, Korean, Polish, PortugeseBR, Russian, SpanishMEX, SpanishSPN, Thai, Turkish |   |   |                        |   |
| <b>Operating range</b>             | -10°C to +40°C (+14°F to 104°F); IP54 dust and splash resistant  |   |   |                        |   |
| <b>Certification</b>               | CE   |   |   |                        |   |

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