

# X-ray Diffraction (XRD)

## PRODUCT NAME

# BTX-II

## TECHNOLOGY CATEGORY

Elemental Analysis;

### Olympus Scientific Solutions America

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Model Number	Not Specified
Synopsis	The BTX-II has the full XRD mineralogical analysis capabilities of the BTX Profiler, but only rudimentary XRF information gleaned from the CCD detector; it essentially aids in the XRD mineralogical identification and analysis as opposed to providing the full, rigorous elemental ED-XRF analysis found in the BTX Profiler. The BTX Profiler combines full XRD and full XRF capabilities. It uses single sample measurement or unattended multi-sample measurements with an integrated autosampler. Applications include: counterfeit drug screening, pharmaceutical discovery library building, and fire or explosives forensics.
Category	Chemical; Explosives
Detection Method	X-ray Diffraction (XRD); X-ray Fluorescence (XRF) ;
Detection Principle	Elemental Analysis;
Application	Laboratory Analysis; Bulk Analysis;
Type	Instrument
Availability	Commercially Available: 60 to 90 days for delivery
Readiness Level	9
Market Entry Date	2008
User Feedback Sources	Not Specified
Support Documents	Not Specified

## Operational Parameters

Tested for Chemical Agents	Not Applicable
Tested for ITF25TICTIMs	Yes
Tested For Explosives	Yes
Tested For Narcotics	Yes
Other Chemical Targets	Elemental Analysis
Tested For Biological Agents	Not Applicable
Other Biological Targets	Not Applicable
Radiological Targets	Not Applicable
Library Size	Commercial databases available
Customize For New Targets	Yes
Sample Introduction	Solid
Sensitivity Detection Limits	100's ppm to %
Known Interferents Inhibitors	Not Specified

## BTX-II

False Positive Rates	Not Specified
False Negative Rates	Not Specified
Start-Up Time From Cold Start To Sample Ready	2 minutes
Response Time Sample Application To Output	5 to 15 minutes
Total Run Time	5 to 15 minutes
Alarm Capability	Not Specified
Software Control	On-board
Other Operational Parameters	XRD range: 5 - 55° 2 $\theta$ , 0.25° 2 $\theta$ resolution, XRF Energy Range: 3 to 25 keV, 200 eV resolution, Sample Size: 15 mg; X-Ray tube voltage: 30kV, X-ray tube power: 10W, X-ray target material: Cu or Co (Cu standard), Sampling: Dry powder is placed into a small chamber.

### Physical Parameters

Dimensions	BTX-II: Single sample unit 11.75 x 6.9 x 18.5 in (299 x 176 x 496 mm) BTX Profiler: Single sample unit -19.41 x 15.66 x 13.55 in (494 x 398 x 345 mm) Multi-Sample unit 26.57 x 15.66 x 13.55 (675 x 398 x 345 mm)
Weight	BTX-II: 27.5 lbs (12.5 kg) BTX Profiler: 51 lbs (23.2 kg) BTX Profiler Multi-Sample: 72 lbs (32.7 kg)
Power Requirements	110 to 220 VAC
Noise Produced	Not Specified

### Logistical Parameters

Transportability	Benchtop/Fixed; Small Footprint
Durability	Shock and vibration tested
Operating Conditions	-10 to 35 °C (14 to 95 °F)
Consumables	Sample cells for the both XRD and for XRF, Mylar windows (\$100/set of 10)
Solvents Reagents	Not Applicable
Calibration Schedule	Not Specified
Suggested Routine Maintenance	Mylar window needs to be replaced approximately every 6 months. User can perform basic preventative maintenance; however, major repair work needs to be done by manufacturer.
Shelf Life	10 years
Unit Cost	\$53,750
Expected Operational Life	Indefinite
Available Accessories	Not Applicable
Data Analysis Support Equipment	Not Specified
Data File Type Format	TXT
Communications Interface	Ethernet or Wireless(802.11b/g)
Maintenance Cost	\$100

### Training, Shipping, And Other Information

Operator Skills Required	Non-technical
Training Available	Yes
Manuals Available	Operator's Manual
Reachback Service	No
Warranties	1 year, extended warranty
ITAR Export Regulations	None
IATA Shipping Restrictions	Not Specified
Approved Vendors	Not Specified