

Benchtop X-ray Diffraction

The next generation in X-ray Diffraction instrumentation

Specifications

XRD resolution: 0.25° 2 θ FWHM

XRD range: 5-55° 2 θ

Detector type: 1024 x 256 pixels - 2D Peltier-cooled CCD

XRF energy resolution: 200 eV at 5.9 keV

XRF energy range: 3 to 25 keV

Sample grain size: < 150 μ m crushed minerals - (100 mesh screen, 150 μ m)

Sample quantity: ~ 15mg

X-ray target material: Co or Cu (Cu standard)

X-ray tube voltage: 30kV

X-ray tube power: 20W

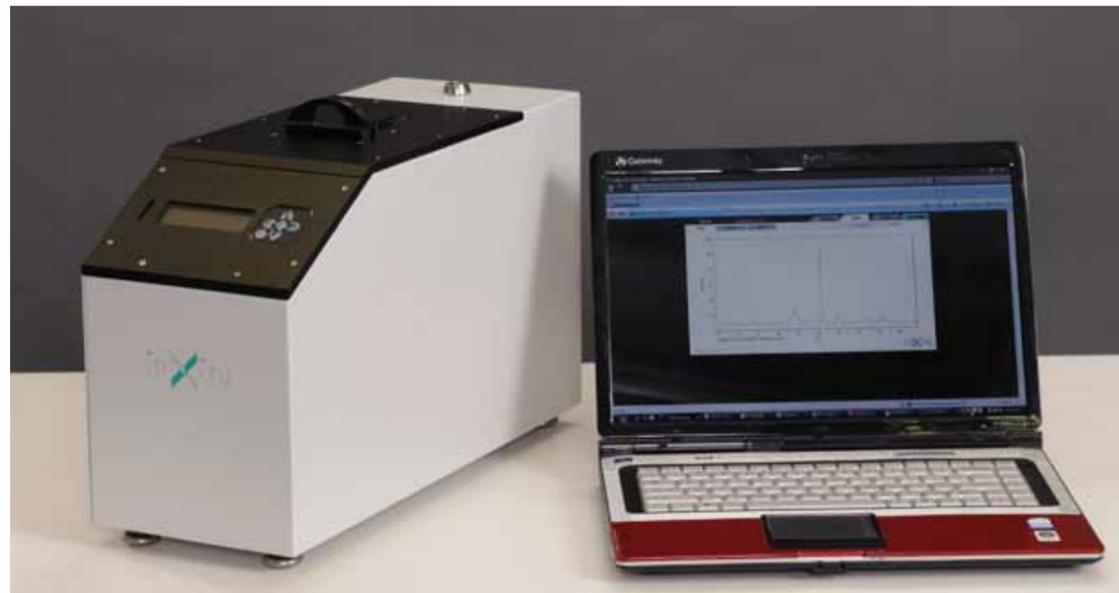
Data Storage: 40 Gb - Ruggedized internal hard drive

Wireless Connectivity: 802.11 b/g for remote control from web browser

Operating Temperature: -10°C to 35°C

Dimensions: 11.75 X 6.9X 18.5 in (30 x 17 x 47cm)

Weight: 12.5 kg



Laboratory Powder X-ray Diffractometer (pXRD)



BTX-II: Benchtop X-ray Diffraction / X-ray Fluorescence

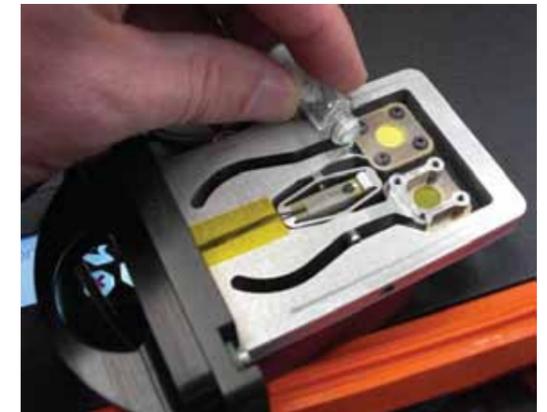
Patented technology from NASA & inXitu

Born from the desire to perform X-ray diffraction experiments on the Mars Science Laboratory (MSL), the inXitu team of engineers have captured the technology of the MSL program for earthbound applications in BTX, the world's first benchtop combined XRD/XRF instrument. Licensed from the National Aeronautics and Space Administration under patent 7,113,265 as well utilizing inXitu's own patents, BTX brings to life a new way of performing X-ray diffraction and X-ray fluorescence measurements. With its unique powder handling system combined with no mechanical goniometers or complicated moving parts, **BTX is able to provide full laboratory grade powder XRD performance at a fraction of the price.**

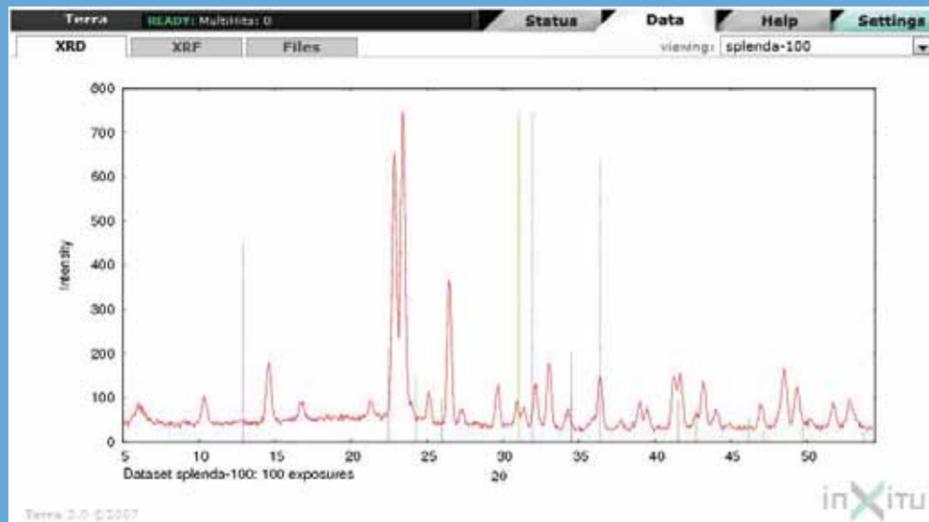
Using a specifically developed direct excitation charge coupled device (CCD) "camera", BTX is able to collect X-ray photon data for both X-ray diffraction and X-ray fluorescence simultaneously. This is the result of the integrated camera's ability to detect both photon position and photon energy at the same time. With energy resolution of ~200 eV (5.9 KeV), BTX makes XRF analysis as simple as viewing the software spectrum display.

Easy sample preparation

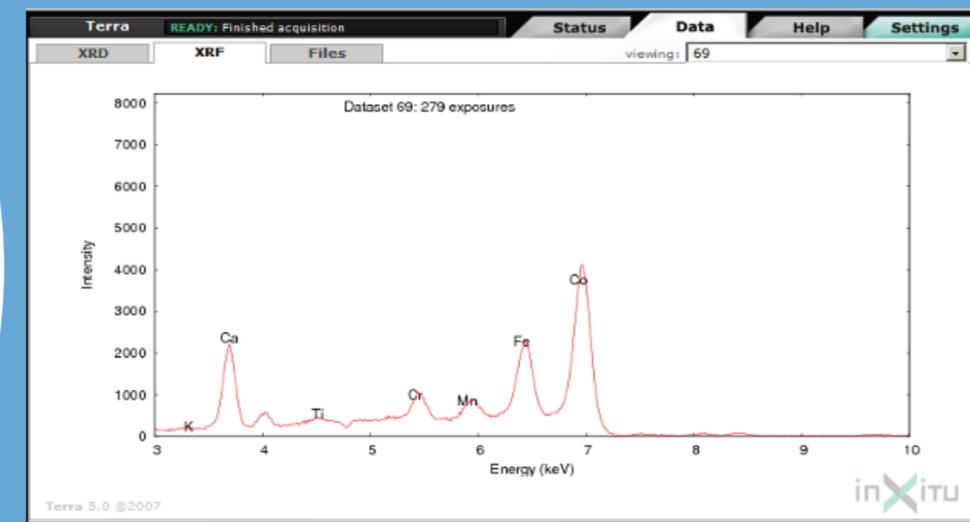
Typically, X-ray diffraction experiments require a finely ground sample which is then pressed into a pellet. This requirement is formed by the need to ensure sufficient random orientation of the crystals in the sample. BTX introduces a patented new way of addressing this issue. With only 15mg of sample, BTX convects the sample with its integrated sample vibration chamber. By doing so, BTX is able to present all different orientations of the crystal structure to the instrument optics. This results in a superb X-ray diffraction pattern, virtually free of problematic preferred orientation effects found using more classic preparation methods.



X-ray diffraction data



X-ray fluorescence data

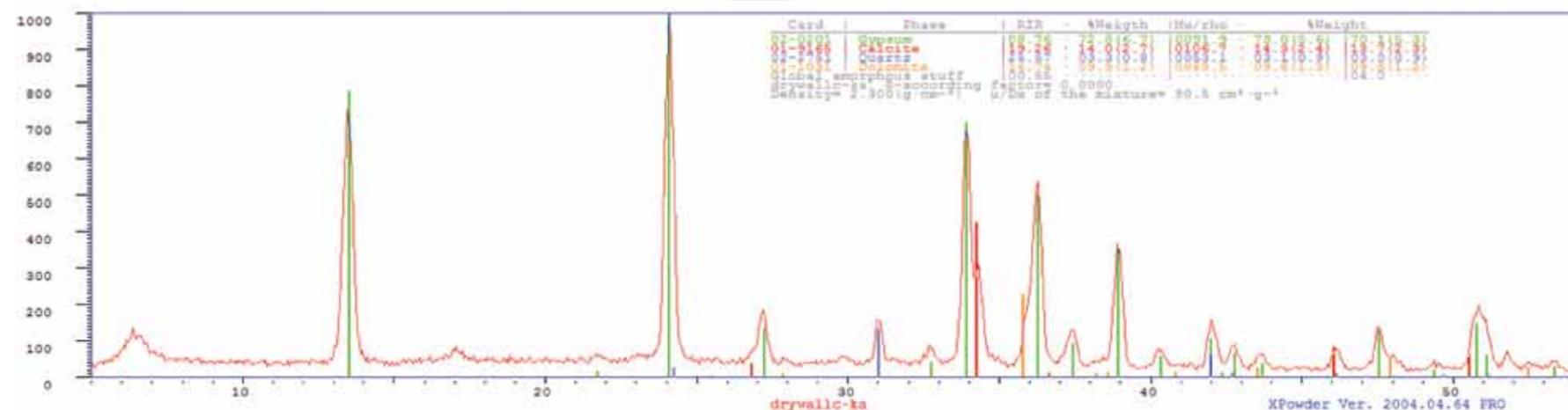


Search/match & XRD quantitative analysis software included

BTX is shipped with the necessary software (XPowder) for processing the resulting X-ray diffraction data. This includes the AMSCD mineral database. Should the user wish, XPowder provides the ability to use the ICDD Powder Diffraction Files (PDF).

For quantitative analysis, XPowder comes complete with Relative Intensity Ratio (RIR) quantitative analysis methods as well as full pattern analysis tools.

Further, BTX provides XRD pattern data in a variety of file formats making XRD pattern interpretation in other third party programs easy and available.



BTX operates off software embedded in the unit itself. The user accesses the operating system through a wireless connection (802.11 b/g). This unique method of operation allows for a wide degree of flexibility in controlling the instrument and subsequent data handling.