Issue 2010/04 December 2010

Enquiries: Dr Catherine Kealley, catherine.kealley@uts.edu.au

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1. Message from the National President

Welcome to the last AXAA newsletter for 2010! What a success this year has been, with student seminar days held in both NSW (fifth consecutive year) and VIC for the second year running, and a techo arvo event in NSW for the second consecutive year too. Most recently, the VIC Student Seminar Day was a great success, with the 2 winners adding to the pool of student bursaries for AXAA-2011 being awarded. Congratulations to all our student bursary winners from both student seminar days and from the national call for applications. Speaking of AXAA-2011, although early-bird registration has now closed, general registration is still open for last minute attendees, and we still have some places left for posters, which are able to be submitted via the conference website. Get your posters in now folks.

The National Council will be voted in at the next AGM, to take place at AXAA-2011. Please get your nominations to me by the 18th January 2011. Finally, a big thank-you to Cat Kealley for all her hard work as newsletter Editor; this is her last newsletter as the National Council looks towards re-shaping in next year. Congratulations to her again for producing 12 great editions.

Happy holidays!

Vanessa Peterson
AXAA President
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2. Editorial

With less than two months to AXAA 2011, the program has been finalised, the speakers notified, the student bursaries awarded, and the excitement is building!!!!

We hope you enjoy our December newsletter – it is the last newsletter for 2010, and my final as editor, before the new AXAA National Council forms in February 2011. For those of you on my email reminder list, I will forward your details on to the new editor (to be decided in February 2011), whom will contact you with the closing date for submissions for the first newsletter in 2011. In the meantime, if anyone does email me a submission, I will also forward this on to the new editor.

I would like to take this chance to say a massive THANK YOU to everyone who has contributed over the last three years! Thank you for all of your support and time, and for (almost) always submitting your contributions by the deadline. You have all made my job as editor very, very easy. I never had to go searching/nagging/bullying for articles (which is amazing), and I think this gives a clear indication of the interest and strength of the AXAA community. A special thank you must go to Vanessa Peterson, Chris Kelaart, Jessica Leong and Brian O'Connor; they never missed an edition!

Catherine Kealley
AXAA Vice-President/Newsletter Editor
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3. AXAA 2011 – Conference Announcements

Call for Poster Abstracts

Although the "Call for Abstracts" has officially closed, we are **still accepting abstracts for posters**. Please complete abstract submission at: www.axaaconference.info

Congratulations to our Student Bursary Recipients:

Student	University Affiliation	Bursary
Andrew Princep	University of New South Wales	AXAA
Chantelle Driever	Melbourne University	AXAA
Elizabeth Fellows	University of Sydney	AXAA
Jessica Chadbourne	University of Sydney	AXAA
Mark Styles	Melbourne University	AXAA
Ross Williams	Curtin University	AXAA
Sam Duyker	University of Sydney	AXAA
William Rickard	Curtin University	AXAA
Xiaodong Wang	Curtin University	AXAA
Xiaoshuang Yang	University of Sydney	AXAA
Yue Wu	University of Sydney	AXAA
Erla Hafsteinsdottir	Macquarie University	PANalytical
Fatemeh Mirnajafi Zadeh	University of New South Wales	PANalytical
Talitha Santini	University of Western Australia	PANalytical
Anna-Lisa Chaudhary	Curtin University	Bruker
Nicola Forster	University of New England	Bruker

Vanessa Peterson
AXAA President
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4. "Something To Bragg About" Report

2010 AXAA VIC Student Seminar Day, "Something to Bragg About"

The 2010 AXAA VIC Student Seminar Day, "Something to Bragg About" was held on the 6th October at CSIRO Materials Science and Engineering in Clayton. An audience of 25, including students, postdocs and senior research scientists were first treated to a plenary presentation given by Dr David Hay, which was an overview of recent work using micro-mapping (XRD and XRF) and X-ray absorption spectroscopic (XAS) measurements (XANES, EXAFS) for imaging pigment distribution in paintings. Following this, excellent presentations on a wide range of topics were made by PhD students Ajay Mahato (Deakin University Geelong), Mark Styles (Melbourne University and CSIRO), Shuhuna Peng, Juan Zhang (both Deakin University Geelong and CSIRO), Chantelle Driever, Nicholas Tse (both Melbourne University and CSIRO) and Vanalysa Ly (Monash University). Chantelle and Mark were each awarded a student bursary prize, covering airfare, accommodation and registration costs to attend and present at the AXAA 2011 conference in Sydney, for giving the best presentations as judged by a panel of five experts. Chantelle talked knowledgeably and enthusiastically about her research investigating the control of burst release of cubosomes through nano-encapsulation, and Mark gave an impressive account of an environmental cell he developed for studying molten salt processes *in situ* using energy dispersive X-ray diffraction. Well done! The organisers wish to sincerely thank all those who helped make this a successful event; Liz Goodall for her timekeeping, David for his plenary presentation, and David, Ian Madsen, Rod Clapp, Aaron Seeber and Rob Evans for their expert judging.

Presenters at the 2010 AXAA Student Seminar Day, "Something to Bragg About", held at CSIRO Materials Science and Engineering in Clayton: (left to right) Mark Styles, Chantelle Driever, Nicholas Tse, Ajay Mahato, Shuhuna Peng and Juan Zhang. Absent: Vanalysa Ly.

Nathan Webster and Natasha Wright
CSIRO

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5. Company News

Bruker acquires Veeco Instruments Inc

Bruker Corporation recently announced the acquisition of the Atomic Force Microscopy (AFM) and the Optical Industrial Metrology (OIM) instruments businesses from Veeco Instruments, Inc.

The industry-leading AFM scientific instruments business headquartered in Santa Barbara, California, as well as the OIM business based in Tucson, Arizona, along with the global AFM/OIM field sales, applications and support organizations, have now become part of the Bruker Nano Division, which is part of the Bruker AXS Group, adding more than 350 employees in eleven countries.

The acquired AFM and OIM businesses are highly complementary to Bruker's existing systems and solutions, and the combined product portfolio transforms Bruker into a global leader in materials research and nanotechnology analysis instrumentation. In addition to the newly acquired AFM and OIM product lines, Bruker offers a broad range of high-performance X-Ray Diffraction (XRD), X-Ray Fluorescence (XRF), XRF microanalysis (XRF), vibrational spectroscopy (FTIR, NIR, Raman) and AFM hybrid (e.g. AFM-Raman, AFM-optical microscopy) systems, as well as EDS and EBSD analyzer accessories for third-party electron microscopes, all used for surface analysis in materials, life-science and nanotechnology R&D and quality control.

Bruker has long been a global leader in life-science research tools with a focused portfolio of high-performance NMR, pre-clinical MRI, EPR, life-science mass spectrometry and X-ray crystallography instruments. In May 2010, Bruker also expanded its mass spectrometry portfolio into the chemical analysis markets with the acquisition of laboratory GC, GC-MS/MS and ICP-MS product lines of Varian Inc.

Frank Laukien, President and CEO of Bruker Corporation, stated: "We are very excited about the addition of these highly regarded AFM and OIM businesses to Bruker, as they complement our focused product and market strategies very well. With these additional high-performance and industry-leading products, Bruker can now serve its global customers and markets even better. Moreover, we cordially welcome the many talented and motivated new AFM and OIM colleagues who have just joined Bruker."

Mark R. Munch, Ph.D., previously the Executive Vice President of Veeco's Metrology and Instrumentation Business, has been appointed President of Bruker Nano, Inc. with responsibility for the acquired AFM and OIM businesses. Dr. Munch commented: "Together with Bruker, we now have a tremendous new ability to further develop innovative products that will evolve the industry and how we measure and obtain nanoscale information. Bruker has been extremely supportive from the start and is dedicated to ensuring that our current and future customers receive the highest performing and most innovative instruments with unsurpassed service."

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6. Upcoming Events

National XRD Course *X-ray Powder Diffraction Analytical Methods*, Curtin University, Perth

Dates for 2011 course to be advised

Venue: Department of Imaging and Applied Physics, Curtin University, Bentley (Perth), Western Australia. [Client-specific version of the course can be presented at the customer's site].

Duration of Curtin Course: 4 days

Dates for 2011 courses to be advised

Course Presenters: Professor Brian O'Connor and Dr Robert Hart

Enquiries and further information: B.O'Connor@curtin.edu.au

Cost: $2,420 including GST

Availability of places strictly limited.

Overview: The course has been designed to give participants a theoretical and practical grounding in the principal characterisation methods which make use of x-ray powder diffractometry data. Approximately 60% of the course involves hands-on instruction. Participants personally collect diffractometry data sets and then process these, both manually and with PC computers, in exercises on various analytical methods, including Rietveld analysis. Public domain software will be used, including *WINPLOTR* and *Rietica*. The course also includes overviews and demonstrations of the commercial software packages *X'Pert HighScore Plus* and *Diffracplus Topas*. While the course is relevant to the analysis of all classes of crystalline materials, attention will be devoted mainly to materials relevant to the mining and mineral processing sector.

Brian O'Connor
Curtin University
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Internet XRF Course: Series 4, 2011

The course provides XRF analysts, particularly those new to the field, with on-site instruction in the practical principles of wavelength dispersive XRF. Features of course include -

- Start at any time, subject to the availability of places in the course
- Self-paced instruction to accommodate the needs of busy people
- Study materials transmitted as e-mail attachments in the form of 11 modules; with an assignment being set for each module.
- Feedback on the assignments provides excellent mentoring.

The course now has a substantial number of international participants, as well as Australians.
Course availability: Starting date by arrangement. Approximately 5 places available for Series 4 (2011) of the internet course.
Course director: Dr Brian O'Connor
Course fee: $2,420 including GST
Further information and enrolment: brian_oconnor@iprimus.com.au (Tel 08 9291 7067)

Brian O'Connor
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Dear Madam or Sir,

Bruker AXS cordially invites you to our 7th TOPAS Users' Meeting, which will be held February 5-6, 2011, prior to AXAA 2011 conference, at the Novotel Darling Harbour in Sydney.

This highly interactive user's meeting is aimed at providing users with essential theoretical background as well as some working experience. The major components of this workshop are problem solving and modeling methods, with the focus on the exchange of tips and tricks.

The meeting is open for anyone, users and non-users, interested in learning more about the TOPAS capabilities and applications. It is a unique opportunity to meet both the TOPAS makers and expert users and to profit from their experience.

Participants are encouraged to submit discussion topics in advance. The final schedule will take issues of general interest into account.

Organizers:

Arnt Kern, Bruker AXS GmbH, Germany
Chris Kelaart, Bruker AXS, Australia

Invited speakers:

Ian Madsen, CSIRO, Australia
Nikki Scarlett, CSIRO, Australia
Jim Cline, NIST, USA
Ross Williams, Curtin University, Australia

Location and hotel reservations:

Novotel Sydney Darling Harbour
100 Murray Street
Darling Harbour
N.S.W 2000
Sydney
www.novoteldarlingharbour.com.au

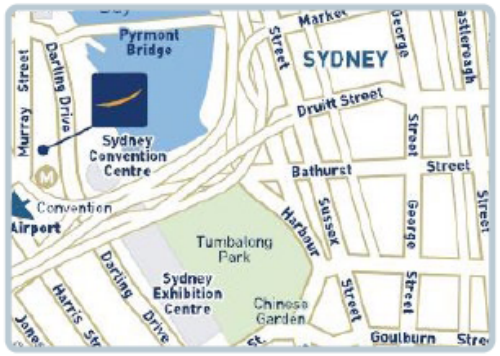
Registration fee:

Full Delegate A$500.00 (+ GST)
Academic Delegate A$350.00 (+ GST)

Cancellation

For cancellation within 10 working days before the start of the course, we will charge a cancellation fee of 30 %. Booked persons not attending the course without having given prior notice will be fully charged.

Reaching the Hotel



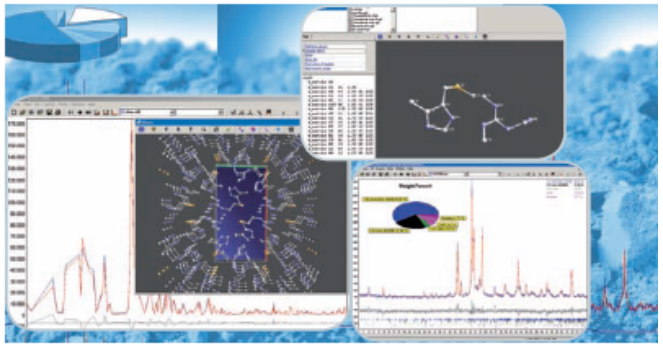
Registration

Please mail or fax the completed registration form to:

Attn Chris Kelaart
Bruker Biosciences Pty Limited
1/28A Albert St
Preston VIC 3072

PO Box 8432
Northland Center VIC 3072

Phone: +61-(0)3-9474-7000
Fax: +61-(0)3-9474-7070
Email: chris.kelaart@bruker-axs.com.au
www.bruker-axs.de



7th TOPAS Bruker Users' Meeting
February 5-6, 2011
Sydney, Australia

2nd Circular

Innovation with Integrity

XRD

Preliminary Program

Saturday February 5th:

08:00 - 09:00 Registration

Session I: Introduction to TOPAS

09:00 – 09:15 Welcome and introduction
Chris Kelaart, Arnt Kern, Bruker

09:15 – 10:30 The TOPAS macro language and algebra system: Part 1 - Introduction
Arnt Kern, Bruker

10:30 – 11:00 Break

Session II: Line Profile Analysis

11:00 – 12:30 Profile fitting basics: a) Introduction to profile analysis
Arnt Kern, Bruker

12:30 – 13:30 Lunch

13:30 – 14:00 Profile fitting basics: b) Walk-through: Profile fitting
Jim Cline, NIST

14:00 – 14:30 Use of crystallite size determinations in heated bone experiments (forensics slant) – determination of temperature of heating bone
Mark Raven, CSIRO

14:30 - 15:00 NIST SRM certification
Jim Cline, NIST

15:00 – 15:30 Break

Session III: Quantitative (Rietveld) Analysis

15:30 – 17:00 Quantitative (Rietveld) analysis with TOPAS - Introduction
Arnt Kern, Bruker

17:00 – 18:00 Determination of Amorphous Content
Ian Madsen, CSIRO

Sunday February 6th:

Session III: Quantitative Rietveld Analysis, ctd.

08:30 – 09:00 Sample preparation/measurement parameters
Arnt Kern, Bruker

09:00 – 09:30 The external standard method or O'Connor and Raven (1988) – Calcined bauxites
(Mark Raven, CSIRO)

09:30 – 10:00 Quantification of Phases with Partial or No Known Crystal Structure - PONKCS
Nikki Scarlett, CSIRO

11:00 – 11:30 The PONKCS method: Walk-Through
Arnt Kern, Bruker

10:30 - 11:00 Break

Session IV: Structure analysis

11:00 – 11:30 Structure analysis with TOPAS: Features and capabilities
Arnt Kern, Bruker

11:30 - 12:30 The TOPAS macro language and algebra system: Part2 - Structure analysis
Arnt Kern, Bruker

12:30 – 13:30 Lunch

13:30 – 15:00 Structure determination using TOPAS
a) Charge Flipping method
b) Simulated Annealing method
c) 3D Fourier analysis
Arnt Kern, Bruker

15:00 – 15:30 Break

Session V: Extended modelling

15:30 - 16:00 Corrections for accurate powder diffraction analysis
Ian Madsen, CSIRO

16:00 - 16:30 Pushing the PONKCS method: quantitative phase analysis with more than one amorphous phase
Ross Williams, Curtin University

16:30 - 17:00 Use of batch files for processing in-situ humidity experiments – reaction of ZnO and monoammonium phosphate at various humidities
Mark Raven, CSIRO

17:00 - 17:30 *Analysis of Energy Dispersive XRD Data*
Matthew Rowles, CSIRO

17:30 - ... Wrap-up

Registration Form

Bruker AXS 7th TOPAS Users' Meeting

Fax Nr. +61-(0)3-9474-7070; Email: chris.kelaart@bruker-axs.com.au

☐ Yes, I/we will attend

Name, First name .....

Position/Department .....

Academic ..... ☐ yes ☐ no

Company .....

Street/Post Box .....

Post Code/City .....

Country .....

Contact Person .....

Date ..... Signature .....

☐ Different Invoice Adresse

Company .....

Street/Post Box .....

Post Code/City .....

7. Calendar of Events

Date	Event	Location	Further Information
Start at any time, subject to place availability	XRF I-Course	Internet delivery	brian_oconnor@iprimus.com.au
2011 dates to be advised	National XRD Course	Curtin University, Perth	B.O'Connor@curtin.edu.au
5-9 December 2010	AIP 2010	Melbourne Convention and Exhibition Centre	http://www.aip2010.org.au/
18-21 January 2011	Powder Diffraction Data Analysis Workshop	Australian Synchrotron, Clayton, Victoria	http://www.synchrotron.org.au/index.php/news/events/australian-events/event/77-pd-workshop
30 January - 3 February 2011	5th Australian Colloid and Interface Symposium (ACIS)	Wrest Point Casino, Hobart	http://home.iprimus.com.au/jaymez/acis2011/index.html
5-6 February 2011	7th TOPAS Bruker Users' Meeting	Novotel Sydney Darling Harbour	chris.kelaart@bruker-axs.com.au
6-11 February 2011	AXAA 2011 Workshops, Conference and Exhibition	Star City, Darling Harbour, Sydney, Australia	vanessa.peterson@ansto.gov.au
2-12 June 2011	The International School of Crystallography, 44th Course "The Power of Powder Diffraction"	Ettore Majorana Centre, Erice, Sicily, Italy	http://www.crystalerice.org/erice2011/2011pd.htm
22 - 30 August 2011	XXII General Assembly and Congress of the International Union of Crystallography	Madrid, Spain	www.iucr2011madrid.es

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8. AXAA Website and Contacts

WEBSITE http://www.axaa.org

NATIONAL COUNCIL PRESIDENT
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Telephone: (02) 9717 9401, e-mail: vanessa.peterson@ansto.gov.au

NATIONAL COUNCIL VICE-PRESIDENT
Catherine Kealley, Department of Imaging and Applied Physics, Curtin University of Technology, GPO Box U1987, Perth, WA 6845.
Telephone (08) 9266 3673, e-mail: catherine.kealley@uts.edu.au

NATIONAL COUNCIL SECRETARY
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Telephone: (02) 9717 3660, e-mail: ned.blagojevic@ansto.gov.au

NATIONAL COUNCIL TREASURER
Rob Hart, Department of Imaging and Applied Physics, Curtin University of Technology, GPO Box U1987, Perth, WA 6845.
Telephone: (08) 9266 2643, e-mail: r.d.hart@exchange.curtin.edu.au

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9. Company Advertising

For XRD, the XFlash offers an outstanding separation of sample fluorescence and Kß suppression for unmatched peak-to-background ratios. Additionally, the D2 Phaser can be switched to an arbitrary wavelength within the X-ray tube emission spectrum. Commonly, the Kα1,2 doublet is employed for standard powder XRD. By using the XFlash detector Kβ can be selected instead in order to obtain monochromatic powder patterns avoiding peak overlap inherent to the commonly used Kα radiation. Observed line profile widths (FWHM) are identical to those of "classic" point detectors such as scintillation and proportional counters, i.e. better than 0.05° 2θ for SRM660a with CuKα.

Unique to the D2 Phaser with XFlash is its capability to obtain ED-XRD patterns at user-defined 2θ positions. This mode allows extremely fast measurements, because the whole energy spectrum as seen by the detector is collected as once, without the need for mechanical movements. Thanks to the θ/θ geometry of the D2 Phaser, measurements can be performed even on loose powders.

XRF data are collected simultaneously with either XRD or EDXRD measurements, providing for element identification and monitoring of concentrations (K - Hf). Knowing the (partial) elemental composition of the sample greatly assists successful phase identification and quantitative analysis of unknown samples or of samples with similar diffraction patterns. Additionally, quantitative phase analysis results can be validated by comparing the calculated elemental composition with the actually measured elemental composition.

For more information contact:
Bruker Biosciences Pty Ltd
1/28A Albert St, Preston VIC 3072
Ph: 03 9474 7000

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Diffraction Technology

Do you want a simple low-cost, no-frills X-ray Powder Diffractometer for routine materials characterisation?

This is what the MMA and now the eMMA is designed for

It is lightweight , bench-top mounted, and can be moved or transported without losing alignment. The unique Harmonic Gearbox goniometer and the tube-shield are attached to the cabinets, so the whole instrument moves as one.
It has a radius of 250mm , so there is adequate resolution for separating closely spaced mineral peaks.
It can be fitted with a 10-sample loader, which is unobtrusive so can be left in place permanently if desired.
AND – it can be driven from your Laptop via the Ethernet port either directly or via a network by software which is integrated with ICDD ® databases for rapid qualitative identification.

For more information-www.diffraction.com.au
Or contact Rod Clapp at diffraction@bigpond.com

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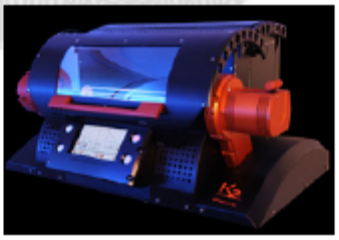
AXT Exhibit at AXAA 2011

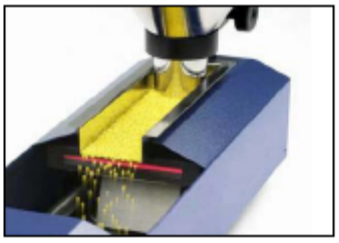
AXT will have some exciting products on show in February at the AXAA. We will have a lot of working analytical instrumentation and sample preparation equipment. Bring along samples and see what the latest technology can do to improve your laboratory.



The Katanax K2 Prime

- Robust controlled heating at a touch
- Unique: Touch interface, USB, sturdy
- Accuracy: Entirely automated, perfect reproducibility
- Safety: No gases used, No toxic products released, protective shield

AXAA 2011: AXT will have a working system for demonstration. See how easy it is to program your recipe.



Haver & Boecker : Photo-Optical Particle Analysis

- Economical state-of-the-art unit for use in a laboratory environment
- Particle size and shape analysis in the measuring range from 34 µm up to 25 mm
- High Speed Automatic Measurement

AXAA 2011: Bring a sample of your material and see what your particle size and shape distribution looks like on the new HAVER CPA software.

Rigaku NexCG

- Rigaku NEX CG delivers rapid qualitative and quantitative analysis with minimal standards
- Analyze 11Na to 92U non-destructively
- Solids, liquids, powders and thin films
- Polarized excitation for lower detection limits
- PPB detection limits for aqueous samples using UltraCarry
- Simplified user interface with EZ Analysis

AXAA 2011: We will have a fully operational unit at the show so bring your samples and see how the NexCG out performs anything else in the <100K price range.

www.axt.com.au Solutions for Science and Industry

Combined XRD & XRF on your bench top

Rigaku have launched a new combined XRD & XRF solution for Cement & Mineral Analysis. A small but powerful solution to gain both elemental and phase information.

Rigaku

AXT Exhibit at AXAA 2011

Both systems will be available to inspect at the AXT Booth at AXAA 2011.
Come see how effortlessly you can get combined elemental and phase reporting.

XRD RESULTS

XRF RESULTS

COMBINED RESULTS

CaO 63.35% SiO_2 22.66% Al_2O_3 3.99% Free Lime 1.75%

	XRF - Supermini Cement	XRD - New MiniFlex II - C
Power	200W	600W
Chiller	Not needed	Small floor model Incl.
Interface	LAN x 2	LAN×3
PC	Purchase locally （Dell)	Purchase locally （HP)
Detector	SC+FPC （ P-10 gas)	D/teXUltra
Goniometer	Tube below	vertical Theta-2theta
Sample Changer	Sample turret for 12 samples (Standard)	6 samples (option)
Sampling	Make a briquette with binder	Glass slide or pressed
Throughput	11 elements in 4 minutes (ASTM criteria)	3 minutes with D/teX

www.axt.com.au Solutions for Science and Industry

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Sietronics Pty Ltd
ANALYTICAL SPECIALISTS

TM Engineering – Sample Preparation Specialists

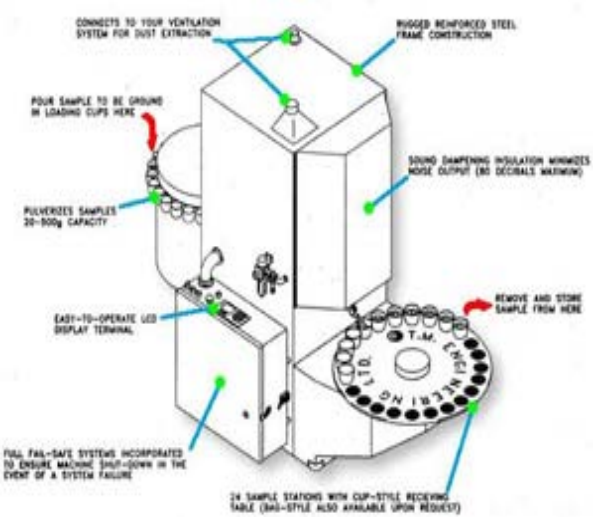
Sietronics Pty Ltd are pleased to announce that the company now represents TM Engineering Ltd in Australia, New Zealand and South East Asia

TM Engineering has been manufacturing a wide range of laboratory crushing and sampling products for over 35 years. Some product highlights include:

XT1000 Auto Pulverising System.

This unit is able to automatically pulverise up to 24 samples for:

- XRF (fusion or pressed pellet mounts)
- ICP
- AAS
- Fire Assay

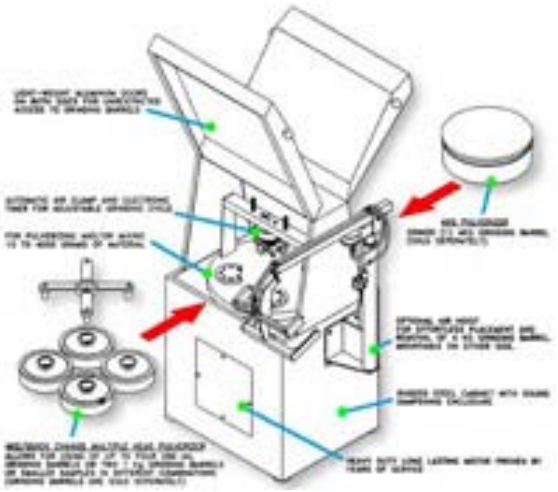


Features

- 24 sample capacity.
- Sample weights 20 to 500gms...
- Self cleaning between samples using either air blast or quartz.
- Tool steel or tungsten carbide grinding bowls.
- Can dispense ground powder to cups or bags.
- Programmable grinding times and cleaning sequences.
- Environmentally friendly, with dust extraction facility.

Constant handling and cleaning of heavy grinding bowls is greatly minimised.

The Auto pulverising system eliminates the tedium of pulverising samples using a conventional ring mill, thereby enabling preparation staff to load the instrument, start the process and return when all 24 samples are pulverised.



4Kg Multiple Head Pulveriser

Fine grinding 4 kg samples in any of the following combinations.

1 x 4 kg bowl
2 x 1 kg bowls
4 x 250 kg bowls

Features

- True 4 kg capacity
- Ideal for iron, gold and other situations where fine grinding of large samples is required.
- Mechanical lifting device eliminates repetitive lifting heavy grinding head components.
- Mechanical lifting device enables more efficient use of the pulveriser as the complete grinding head is lifted allowing a second loaded head to be fitted and run while the first head is being cleaned and recharged.
- Changeover of bowl configuration is fast and simple.

Sietronics can also provide a complete range of crushers, splitters, ovens and other associated sample preparation equipment. Please see our website for me details.

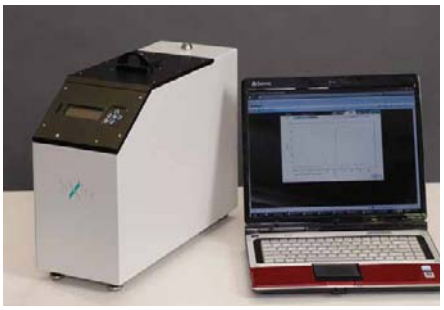
www.sietronics.com.au

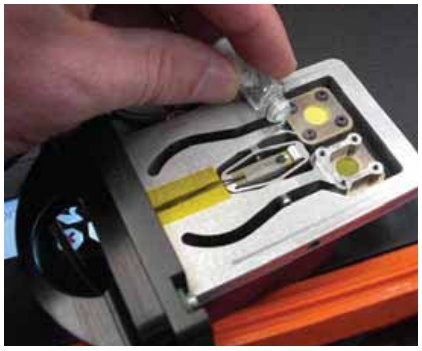
Sietronics Pty Ltd
ANALYTICAL SPECIALISTS

InXitu Terra and BTX – Portable XRD

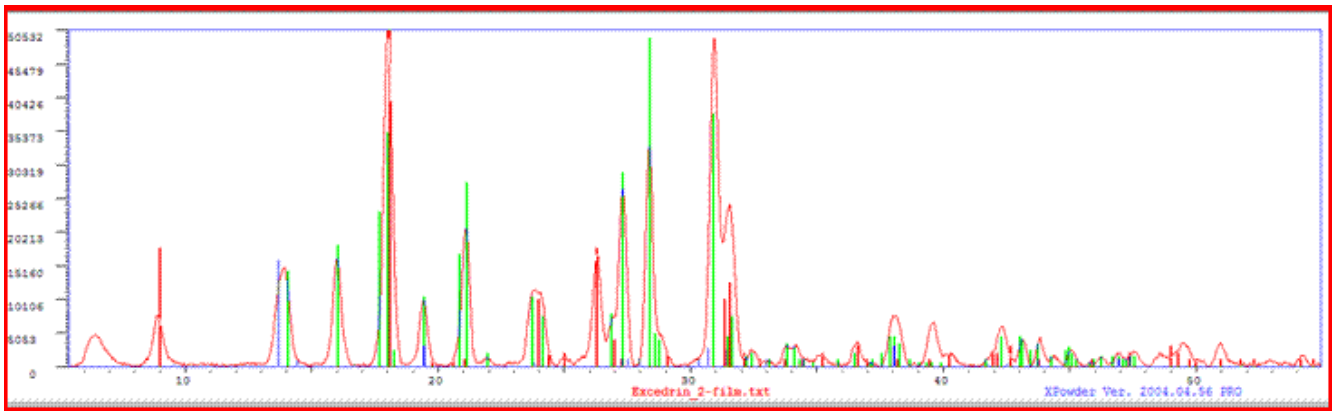
Born from the desire to perform X-ray diffraction experiments on the Mars Science Laboratory (MSL), the inXitu team of engineers have captured the technology of the MSL program for earthbound applications in BTX, the world's first benchtop combined XRD/XRF instrument, and the Terra the world's first field portable combined XRD/XRF instrument. Licensed from the National Aeronautics and Space Administration as well utilizing inXitu's own patents, BTX and Terra bring 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, the **BTX and Terra are 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 and Terra are 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 (5.9KeV), BTX and Terra makes XRF analysis as simple as viewing the software spectrum display.





Typically, X-ray diffraction experiments require a finely ground sample which is then mounted in a sample holder. This may introduce preferred orientation of minerals/crystals in the sample. This requirement is formed by the need to ensure sufficient random orientation of the crystals in the sample. Terra introduces a patented new way of addressing this issue. With only 15mg of sample, Terra convects the sample with its integrated sample vibration chamber. By doing so, Terra 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.



www.sietronics.com.au and www.sietronics.com.au/xrd.html

Sietronics Pty Ltd
ANALYTICAL SPECIALISTS

Sietronics Pty Ltd are pleased to advise that the company is now an Authorised Distributor for the SPECTRO range of X Ray Analytical equipment.

The Spectro X Ray fluorescence analysers are state of the art, extremely innovative and employ the polarised X ray optical system which, with close coupling of the sample to the X ray tube, selected targets and detector gives optimum elemental excitation. Analytical performance for the light elements and trace elements result in new levels of sensitivity and precision.

The SPECTRO iQII X Ray fluorescence analyser is designed for demanding analytical tasks such as cement, refractories, additives including S in fuels, ceramics, major element analysis of geological samples etc.

The SPECTRO XEPOS X Ray fluorescence analyser is the top of the range instrument has extreme sensitivity for elements **Na to U**, the polarised X ray optical system greatly minimises backgrounds resulting in extremely low detection limits for trace elements. The XEPOS has a standard 12 position automated sample loader which can be configured to higher capacity as required.

The TURBOQUANT standardless fundamental parameters software package enables high quality analyses to be obtained from a wide range of sample types and elemental concentrations (including liquids) without resorting to standards and specific calibrations.

Spectro IQ II

Spectro XEPOS

The iQ and XEPOS are suitable for use in research laboratories industrial laboratories and process control laboratories, in fact anywhere that high quality precision analyses are required.

Both instruments are small footprint desk top units, both are air cooled, and do not require flow counter gas. The iQ weighs only 40kg, the XEPOS weighs 80kg.

The iQII and the XEPOS are proven instruments with a significant user base in Australia, they are very competitively priced, local service and analytical support ensures that instruments can be maintained to specification and experienced XRF practitioners are available to assist with training, analytical support.

Sietronics will be pleased to discuss your analytical requirements and advise as to the suitability of the iQii or XEPOS for your laboratory.

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