



# TMS2014

**143<sup>rd</sup> Annual Meeting & Exhibition**

## ***28th EXHIBITION***

**February 16-20, 2014 • San Diego Convention Center  
San Diego, California, USA**

### ***Exhibit Hours***

Monday, February 17 ..... Noon to 6:30 p.m.  
Tuesday, February 18 ..... 10:00 a.m. to 5:30 p.m.  
Wednesday, February 19 ..... 9:00 a.m. to 1:00 p.m.

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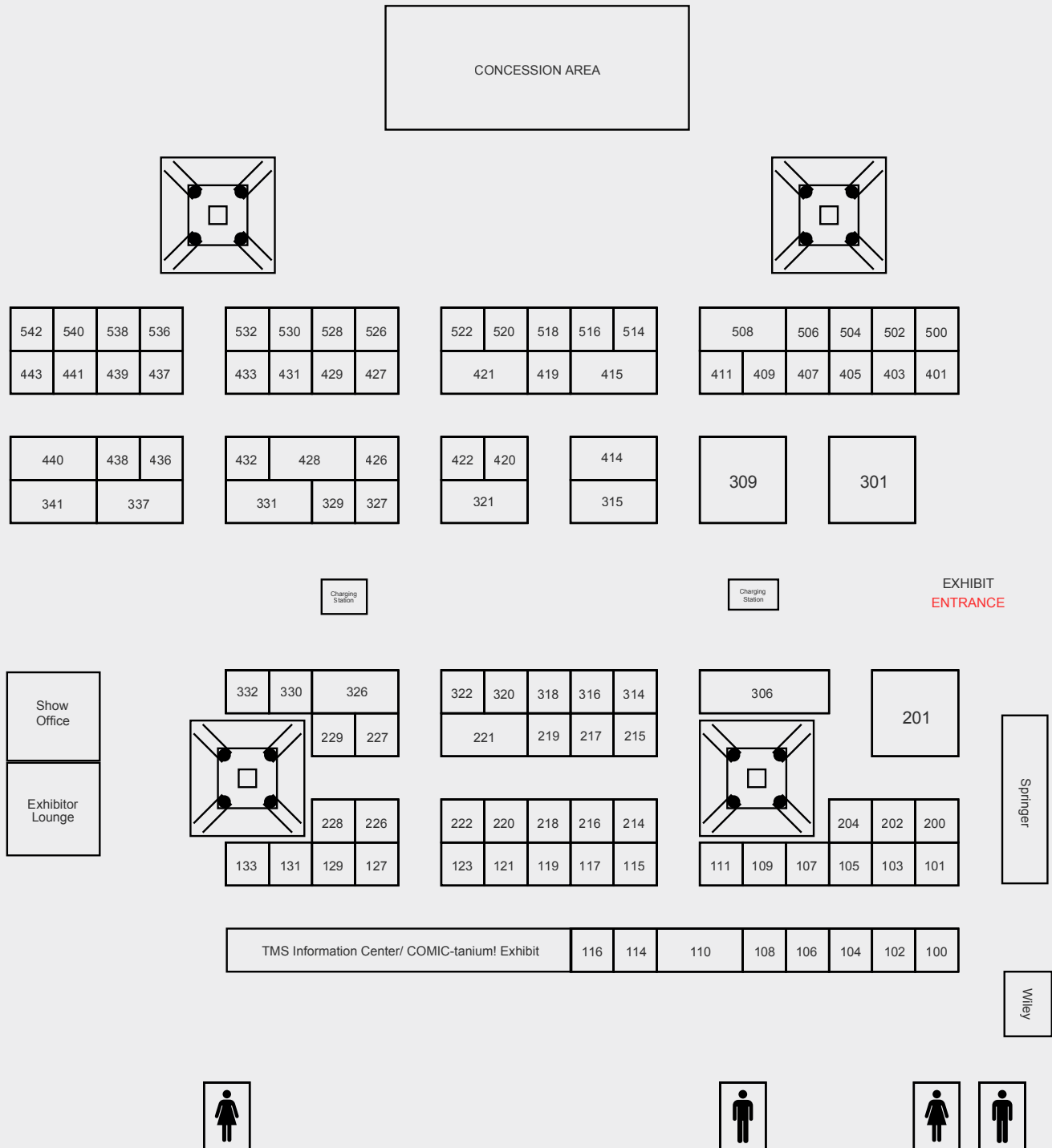




## EXHIBITING COMPANIES

(as of January 16, 2014)

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ABB	314	Innovatherm	115
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# STATE-OF-THE-ART ALUMINIUM SMELTER



EMAL is one of the world's largest single-site aluminium smelters, supplying the world with high quality metal. The advanced smelter in Al Taweelah, UAE, currently uses DX Reduction Cell Technology to produce 800,000 tonnes of aluminium annually. This will increase to 1.3 metric million tonnes by the end of 2014 upon completion of Phase II and the installation of the new generation DX+ Reduction Cell Technology to an additional 444 reduction cells.

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## ABB Inc.

**Booth #314**

ABB Inc. Analytical Measurements - Measurement Products Group designs, manufactures and markets high-performance analytical system solutions and spectroradiometers for petroleum, chemical, life sciences, academic, semiconductor, metallurgy and remote sensing/aerospace markets. Building on more than 40 years of experience in analytical instrumentation, ABB has established itself as a worldwide leader in inclusion and hydrogen measurements in liquid aluminum. The company offers a complete range of analytical solutions to the aluminum industry: AISCAN™ hydrogen analyzer, LiMCA inclusion analyzer, Prefil®-Footprinter melt cleanliness analyzer, PoDFA inclusion identification and quantification analysis. ABB also offers metallographic analysis service for its customers.

## AdValue Technology LLC

**Booth #202**

A leading supplier in high temperature ceramic products made of Alumina, Fused Quartz, and Zirconia. Our products range from crucibles, furnace tubes, plates and discs, thermocouple insulators, sample pan for thermal analysis, to custom components. We also carry other labware and accessories such as agate mortars, crucibles tongs and high temperature gloves.

## Advanced Dynamics Corp., Ltd.

**Booth #200**

For over four decades, Advanced Dynamics (ADCL) has supplied our global customer base with state-of-the-art material handling systems for carbon plants and cast houses. Our handling technology includes fully automated or semi-automated equipment for anode handling and cleaning, aluminum ingot and T-Bar handling, sawing and packaging systems. We also have experience in specialty systems for the magnesium, copper, zinc, steel and lead industries. ADCL is a one-stop shop for your material handling needs including mechanical and controls engineering, fabrication, assembly, test and commissioning. Whether you need a new system or upgrades to existing systems or simply individual pieces of equipment, we can help improve your company's productivity. Remember, "Our ingenuity delivers productivity" when you think of ADCL for your next project. Please look at our new website [www.advanceddynamics.com](http://www.advanceddynamics.com) for the latest news and information.

## Almex, USA

**Booth #127**

Specializing in the most advanced and innovative aluminum casthouse solutions, Almex works to add value to every project. We deliver equipment and technology founded on Performance, Simplicity, and Safety.

## Aluminium International Today

**Booth #502**

Aluminium International Today is the Aluminium Industry's leading international publication reporting on aluminium production and processing worldwide. Founded in 1989, the journal has consistently provided a wealth of technical features aimed at equipping producers and processors with information

on latest developments. Added to this is a regular digest of industry news, contracts, events, new technology, product reviews and conference reports. Supported by the Aluminium Federation in the UK, Aluminium International Today publishes six times a year in English plus two Chinese issues and two Russian issues. Aluminium International Today is a subscription magazine. For a sample copy visit [www.aluminiumtoday.com/sample-issue](http://www.aluminiumtoday.com/sample-issue). Contact: Aluminium International Today Quartz Business Media, Quartz House, 20 Clarendon Road, Redhill, Surrey RH1 1QX, UK. Tel +44 (0)1737 855000 Fax +44 (0)1737 855034 e-mail [aluminium@quartzltd.com](mailto:aluminium@quartzltd.com) web [www.aluminiumtoday.com](http://www.aluminiumtoday.com)

## Aluminium Times

**Booth #117**

Aluminium Times was launched in 1998 with the objective to promote equipment, consumables and products to managers and operators involved in purchase decisions and employed with aluminium primary or secondary producers, rolling mills, forgers or extruders anywhere in the world. The magazine is sent to them free of charge. Since the journal was founded there have been three surveys undertaken to determine reader's requirements of an international magazine serving the aluminium industry. With 5,300 copies posted every issue the 2013 reader survey suggests that on average 4 readers see each copy of Aluminium Times. 84% become aware of new products through Aluminium Times whilst 17% have purchased products after first reading it in Aluminium Times. Aluminium Times is published five times a year and features during the year aluminium industry maps and directories covering the sectors of rolling, extrusion, primary and secondary production. Our booth will feature copies of our latest issues.

## AluminiumNetwork.com

**Booth #516**

AluminiumNetwork.com, the global network for the primary aluminium industry – An internet-based portal offering a wide range of daily information and services to companies and individuals engaged in the primary aluminium industry. Our services include all engineering disciplines from the alumina through to the primary aluminium, including all the support functions for the processes involved. An important feature of aluminiumnetwork.com is its database of consultants and freelance specialists with experience in the aluminium industry. In addition to providing general consultancy services, the experts can offer their support in a large number of areas including feasibility studies, recommendations for revamps, overhauls and repairs, spare parts, purchasing, technical evaluation, research, advice on compositions and formulations, global supplier evaluation and auditing, process evaluation and optimisation. The support can be on a freelance basis and for as long as it is needed.

## ANDRITZ Metals Inc.

**Booth #104**





## COMPANY DESCRIPTIONS

### ArcelorMittal

ArcelorMittal is the world's leading steel and mining company. Guided by a philosophy to produce safe, sustainable steel, it is the leading supplier of quality steel products in all major markets including automotive, construction, household appliances and packaging.

ArcelorMittal operates in 60 countries and employs about 260,000 people worldwide. ArcelorMittal Rodange – Hot Rolling Mill located just outside Luxembourg City – is the single largest producing site of Cathode-Collector bars in the world. The company introduced the Low Resistivity, LR Grade Steel for the Pot application in 2001, and then the Ultra Low Resistivity Steel, ULR Grade, in 2010. ArcelorMittal is a major supplier to all the main Aluminium producing Groups, and many Independent Aluminium Smelters.

ArcelorMittal Rodange provides machining and finishing of Cathode-Collector Bars. First Copper Cored Collector Bar (CCCB) was manufactured in 2004, and the company is supplying increasing quantities of this type of Cathode-Collector Bar, as the advantages of CCCBs become increasingly clear. The ULR Grade steel is also appropriate for use in Anode Assemblies – as both Spiders and Stubs – displaying significantly lower Resistance/Resistivity than Cast Steel Spiders, and as compared to the commercial steel grades usually used for Stubs.

We would be happy to discuss and cost your designs for these items and look forward to meeting you at our Booth.

### Booth #504 ATR

The ATR National Scientific User Facility offers materials science engineers and scientists the opportunity to test materials in an irradiation environment and perform analyses on the irradiated specimens. Capabilities available include three test reactors and a host of post irradiation examination facilities across the United States. Non-proprietary research is cost-free to U.S. university led teams.

Access to facilities is through a solicitation and review process: The kinds of research solicited include, but are not limited to, advanced materials for high performance reactor systems, understanding light water reactor core materials including austenitic steels and nickel alloys, determining properties of material joints after exposure to a neutron irradiation environment and the applicability of nanostructured materials to radiation resistant applications. To learn more about ATR NSUF, please visit our website at: <http://atrnsl.inl.gov>.

### Booth #431

### AUMUND Foerdertechnik GmbH Booth #420

With their proven track record in materials handling and storage from mineral processing to hot materials handling the AUMUND Group offers engineered and cost effective solutions for the primary aluminium production process. Controlled cooling and clean handling of bath material in the primary aluminium smelting process with the AUMUND Cooling conveyor for hot

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#### KEYNOTE SPEAKERS

- Alan Clark, CM Group – The Global Primary Magnesium Supply and Demand Balance 2014
- Xu Jinxiang, China Magnesium Association  
China Magnesium Development Report in 2013
- Karen McBeth, Platts Metals Group  
State of Aluminum: Impact on Magnesium
- Jean Marc Segaud, BMW – Quo Vadis Magnesium?  
Competitiveness of Structural Components in BIW

#### TECHNICAL SPEAKERS

- David Klaumuenzer\*, Volkswagen  
Lightweight Strategy
- Graham Nation, Ventana Aerospace Products  
Markets and Evolution
- Diego Val Andres, Grupo Antolin/ES  
New Magnesium Applications
- Alexis Van Maercke, European Commission  
Magnesium as Critical Raw Material in the EU

\* to be confirmed

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bath material:

- Economical and efficient handling
- Defined cooling from 850°C down to below 100°C
- Drastic reduction of HF emission through controlled suction
- Improved environmental and health conditions
- Reduced investment and operating cost

## B&P Process Equipment

**Booth #528**

B&P Process Equipment provides green anode paste mixing systems such as Batch Mixers or Continuous Kneaders (CK-CP Kneaders). Their rugged design, unique efficient mixing mechanism, coupled with easy access for maintenance, maximize paste throughput and minimize plant downtime. B&P's Carbon Paste Kneader is your most cost-effective solution for anode paste production. No competitive system features the efficiency or throughput of a B&P Carbon Paste Kneader. With the highest production output, paste density, and lowest specific anode consumption, B&P sets the standard. These units are provided from 7 to 75 tons per hour. No matter which system is supplied, the result is a homogeneous mixture, with optimum mixing and dispersion, resulting in highest green paste density for consistent quality anodes.

## Bloom Engineering Company, Inc.

**Booth #318**

Bloom Engineering is the leading supplier of high temperature industrial burners and associated combustion equipment. The company has extensive experience in the steel, aluminum and forge industries and also provides combustion equipment for many other applications. The company prides itself on its in-depth knowledge of the applications in which its equipment is used and the custom designs it creates to provide the best possible solution for each situation. A truly global business, Bloom has companies and associates in all of the major industrial centers of the world. Its headquarters are in Pittsburgh where it was founded in 1934.

## Boise State University Materials Science & Engineering

**Booth #228**

Boise State University Materials Science and Engineering offers innovative undergraduate and graduate programs that facilitate interdisciplinary research with Physics, Chemistry, Biology, Electrical and Computer Engineering, and Mechanical and Biomedical Engineering. Our faculty members are nationally and internationally recognized in the areas of novel materials, biological sciences, and nanotechnology. We promote close student collaboration with our faculty on funded research in areas such as semiconductor device reliability, nanoscale fabrication, microelectronics packaging, shape memory alloys, DNA nanotechnology, energy, biomaterials, materials characterization, and materials modeling. Our program has developed strong community support including a nearly \$13 million contribution from the Micron Foundation dedicated solely to our Ph.D. program. This level of support allows us to foster many opportunities to make significant scientific contributions to cutting edge research.

## Boreal Laser

**Booth #443**

Boreal Laser of Canada is the leading supplier of Hydrogen Fluoride (HF) monitors for environmental and process control in primary Aluminum smelters worldwide. The GasFinder2 and GasFinderFC portable systems are used for HF emissions reduction studies and pot line roof monitoring. GasFinderMC is a fixed, multi-channel system that monitors multiple pot room roof paths for improved environmental performance. GasFinderMC is also used in HF scrubber systems (GTC, FTC) for multiple duct and stack monitoring in order to optimize scrubber performance. Primary benefits of the GasFinder technology are self-calibration, robustness, ease-of-use and industry-leading technical support. Today more than 200 GasFinder systems continuously monitor over 1000 HF measurement points in 60 smelters in 25 countries worldwide. Boreal introduces the NEW GasFinder3 portable HF monitor at TMS 2014.

## Bose Corporation

**Booth #116**

Bose Corporation manufactures the ElectroForce® test instruments using proprietary BOSE® linear motor technology. ElectroForce test instruments were designed specifically for advanced materials research including: fatigue and fracture mechanics, dynamic mechanical analysis (DMA), and creep/relaxation testing. Applications are extremely diverse and include: engineered materials (rubbers/elastomers, plastics, metals, composites, etc.), orthopaedic and cardiovascular medical devices, biomaterials, bone, soft tissues, etc. Visit our booth for a demonstration!

## Buss ChemTech

**Booth #407**

Buss ChemTech AG (BCT) offers fully dedicated applications for Green Anode Production based on 60 years of experience. Covering:

- Modular and fully continuous running Green Anode Plants e.g. KAS Carbon Plant
- Equipment and engineering for dry material handling, horizontal paste production up to the formed green anode
- Pitch storage and melting Plants based on an exclusive and very unique technology
- Original BCT Paste Kneader known as the most advanced kneading application Our highly skilled and experienced engineers are available to provide you the highest level of support to execute inspections, process studies, training and all kind of technical support.







## COMPANY DESCRIPTIONS

### CA Picard International

**Booth #514**

C.A. Picard Engineering GmbH & Co. KG Production, Service and Sales of Wear and Spare Parts Components for Anode Paste Mixers for the Aluminum Industry. C.A. Picard Engineering GmbH & Co. KG is manufacturer of high class equipment and spare parts for various industries with wear intensive products and, therefore, the leading expert for various surface protection methods and wear protection materials. We are certified according to DIN ISO 9001 and our internal processes guarantee that we supply stable high quality according international norms and regulations. The high requirements for special wear protected surfaces for the production of anode paste were the driving force of C.A. Picard to further develop existing wear protection materials and application methods to extend life time and reduce production costs. We offer optimized wear and spare parts at economical prices. Send us your enquiry! We offer alternatives, no compromises! Visit us in San Diego, CA at TMS, booth No. 514

### California Nanotechnologies

**Booth #119**

Cal Nano is an industry leader in Nano Material Engineering, known as the preeminent Research, Development and Production firm in designing and manufacturing superior performance components. Incorporating and innovating the latest material sciences with multiple patented production techniques, Cal Nano produces cost-effective components with unparalleled strength and quality, making them the only choice when absolute performance is demanded. [www.calnanocorp.com](http://www.calnanocorp.com)

### CAMECA Instruments, Inc.

**Booth #520**

For more than 50 years, CAMECA has provided advanced elemental and isotopic micro analytical instruments for the geoscience research community. Come to Booth 520 to see the highlights and latest offering of 50 years of Electron Micro Probe (EPMA), Secondary Ion Mass Spectrometry (SIMS), and Atom Probe Tomography (APT) excellence.

### Canadian Neutron Beam Centre (CNBC)

**Booth #106**

The Canadian Neutron Beam Centre (CNBC) offers access to world-leading expertise and facilities for analyzing stress and texture in engineering materials using neutron diffraction. The CNBC enables hundreds of clients to apply neutron beams to advance their programs of materials R&D.

### Carl Zeiss X-ray Microscopy, Inc.

**Booth #129**

ZEISS expanded the ZEISS Microscopy business group, the only manufacturer of light, electron and X-ray microscopes, by acquiring US-based Xradia, Inc. in July, 2013. X-ray microscopy (XRM) provides non-destructive, three-dimensional imaging of diverse samples in synchrotrons and premier research laboratories worldwide. With unique solutions for research

and routine inspection in the materials and life sciences fields, natural resources, electronics, and other industrial sectors, ZEISS's XRM solutions deliver resolution down to 50 nm, superior contrast capabilities and groundbreaking 4D/in situ imaging for a wide variety of samples and applications.

### CIMM

**Booth #422**

CIMM Group Ltd. is China's leading supplier of Materials for Primary Aluminium Smelters and Alumina Refineries worldwide. Aluminium Fluoride Insulation Refractory Bricks Carbon products for aluminium smelters. "Our goal is very simple. To provide the best integration of production, quality and price. We not only provide stand-alone products to our customers. More than anything, we are focusing on the delivery of an entire 'customized sales and production system' supported by our experienced sales and technical experts from the receipt of our customer's orders, throughout our entire production process to the final product for the corresponding alumina refinery, aluminum smelter or producer. Our 'customized sales and production system' makes our CIMM personnel proud and is valued by our important customers worldwide."

### Claudius Peters

**Booth #403**

In the field of materials handling and processing, from stockyard, pneumatic conveying, silo, clinker cooler, grinding mill and packing & dispatch systems, Claudius Peters are experts in the Cement, Coal, Alumina, Gypsum and Bulk Handling industries.

Claudius Peters Projects GmbH, Germany and Claudius Peters Technologies SAS France are part of the Technologies Division of Claudius Peters Group GmbH, headquartered in Buxtehude, near Hamburg, with regional offices in the Americas, Europe, China and the Far East, offering turnkey and semi-turnkey systems.

The group's other principal division, Aerospace, is engaged in the manufacture of aircraft parts for the European Airbus programme. Claudius Peters Group GmbH is a wholly owned subsidiary of Langley Holdings plc, a privately controlled UK engineering group.

### COMIC-tanium

**Booth #124**

This museum-quality retrospective was developed as a fun, interactive educational experience—of interest to anyone who has ever read a comic book, watched a superhero movie, or wondered at the possibilities of materials technology. COMIC-tanium is a traveling exhibit that debuts at TMS2014. Later, it will tour the country, bringing real-life minerals, metals, and materials science and engineering to the public in a fun and interesting way. The exhibit is a major outreach initiative of the TMS Foundation and the Toonseum of Pittsburgh.

### CompuTherm LLC

**Booth #500**

CompuTherm LLC, established in 1996, develops CALPHAD type of modeling tools in the framework of ICME. The PANDAT 2013 version is released with three modules: PanPhaseDiagram for the calculation of multi-component phase equilibria;





PanPrecipitation for the simulation of diffusion-controlled precipitation processes; and PanOptimizer for the optimization of thermodynamic model parameters and other properties. Thermodynamic and mobility databases are available for a variety of multi-component alloys.

## Coperion GmbH

**Booth #518**

Coperion GmbH is the competent partner for all bulk materials handling solutions around and within the smelter. The company offers solutions to the aluminium producing industry that have proven to be extremely efficient and reliable.

The company supports its customers from the first project concept through a wide range of services to realization and start-up of bulk materials plants such as for example retrofit solutions and provides after-sales support.

Coperion has the necessary expertise for every process stage along the entire process chain in manufacturing of primary alumina. In each process step, the challenges demand plenty of experience, specialist competence and flexibility

## CSM Instruments

**Booth #429**

CSM Instruments offers a wide range of instruments and testing services for surface mechanical properties characterization, including: Hardness Testers, Scratch Testers and Tribometers. 3D-imaging options are available with the ConScan or AFM objective. CSM manufactures standalone instruments as well as testing modules that can be combined together on an automated platform. CSM Instruments is proud to announce the launch of its new Nano Tribometer (NTR2) and Nanoindentation Tester (NHT2).

## Dubal/EMAL

**Booth #201**

A state-owned corporation, DUBAL operates the world's largest single-site primary aluminium smelter using pre-bake anode technology (over one million mtpa). DUBAL's Jebel Ali complex includes a 2,350 MW power station, a large carbon plant, casthouse operations, a water desalination plant, and other facilities. High quality aluminum products are made in three main forms: foundry alloy for automotive applications; billets for construction, industrial, transportation and automotive forging; and high purity aluminium for electronics and aerospace. DUBAL's proprietary reduction technologies rank among the best available.

## EBSD Analytical

**Booth #522**

EBSD Analytical provides advanced microstructural materials characterization services using EBSD/EDS/SEM techniques. We specialize in providing texture, grain size, ODF, grain boundary analysis, and phase ID including elemental composition. With over 17 years experience in EBSD/EDS, having analyzed many thousands of different sample types, we guarantee our results will exceed your expectations as we work with you to solve your materials problems.

## EDAX Inc.

**Booth #426**

EDAX is a leading provider of innovative materials characterization systems encompassing Energy Dispersive Spectrometry (EDS), Wavelength Dispersive Spectrometry (WDS), Electron Backscatter Diffraction (EBSD) and Micro X-ray Fluorescence (XRF). The company designs, manufactures, distributes and services hardware and software solutions for a broad range of industries, educational institutions and research organizations.

## Eirich Machines, Inc.

**Booth #329**

Eirich Machines designs, manufactures & supplies batch & continuous mixers & systems for the processing of raw materials, compounds, waste & residues in a wide range of industries. Our complete line of products for mixing, agglomerating, pelletizing, grinding, granulating & plasticizing range from 1 to 10,000 liters can also be equipped with vacuum. The results of this process technology are synonymous worldwide for some outstanding achievements in the solution of problems in diverse applications. A full line of test equipment allows for pre-sale testing in our lab or the customer's own plant.

## Energoprom Group

**Booth #111**

The Group is the fifth largest world producer of carbon and graphite products.

## Evans Analytical Group

**Booth #506**

Evans Analytical Group (EAG) is the global leader in surface analysis and materials characterization services. Analytical techniques available include: GDMS, ICPMS, XPS, XRD, SEM, TEM, SIMS, and XRF. EAG provides fast turn-around time, superior data quality and excellent results. EAG has over 20 locations in Asia, Europe and the U.S. [www.eag.com](http://www.eag.com)

## FEI

**Booth #214**

FEI Visualization Sciences Group is the leading provider of high-performance 3D visualization software for engineers, scientists, and software developers in materials science, life sciences, natural resources and more. FEI is showcasing Avizo® Fire 3D visualization and analysis software for materials science. Avizo Fire software provides an extensive set of tools addressing 2D and 3D data visualization, materials characterization, reconstruction of 3D models, pore networks and flow analysis, permeability / molecular diffusion / electrical resistivity calculation, etc. Ideal for: synthetic porous materials, polycrystalline metals, geomaterials, and many more.





## COMPANY DESCRIPTIONS

### Fives Solios

**Booth #315**

Fives Solios designs and supplies process equipment and turnkey plants for:

- Coal Tar Distillation
- Reduction: Gas Treatment Centers on electrolysis pots and Bath Processing Plants
- Carbon: High Capacity Green Anode Plants, Pitch storage and processing, Liquid Pitch Terminal, Firing & Control Systems as well as Fume Treatment Centers for anode baking furnaces
- Casthouse: Melting and Holding furnaces including water cooling systems, Heat Treatment furnaces and Genios, the latest technology of metal moving system to stir, transfer and cast.

### FLSmidth

**Booth #415**

FLSmidth is your major equipment supplier from Bauxite Mining and Refining through Calcination to Smelting. Every day, worldwide, our equipment crushes, conveys, grinds, digests, clarifies, precipitates, stores, and calcines hydrate to produce alumina. Few other technology suppliers can offer such a broad range of equipment and processes while increasing recoveries, lowering energy consumption, and providing proven reliability with environmental protection. FLSmidth combined the industry's leading brands and expertise providing integrated solutions that will save valuable time on your project schedule!

### Gautschi Engineering GmbH

**Booth #327**

Gautschi Engineering GmbH is a leading supplier of equipment for primary aluminum casthouses and recycling plants.

The product range of Gautschi™ includes:

Melting – and holding furnaces  
Pusher-type furnaces for rolling slab  
Homogenizing furnaces for extrusion billet and rolling slab  
Multiple chamber furnaces for coil and foil annealing  
Single coil annealing furnaces  
Horizontal D.C. casting plants  
Open mould ingot casting and stacking plants  
Vertical D.C. Casters for extrusion billet and rolling slab  
AIR GLIDE® and AIRSOL VEIL® mould technology

### Gillespie + Powers, Inc.

**Booth #428**

Gillespie & Powers, Inc. would like to thank our customers for their continued loyal support and invite new customers to experience the service and creative problem solving that exemplifies our company. Having over 75 years of experience with hundreds of projects to draw from, we offer creative solutions that provide the ultimate in operational throughput. Gillespie & Powers is engaged in the engineering, design, supply, installation, and maintenance of industrial furnaces and refractory systems. We have specific history in the aluminum market with Delacquering, Melting, and Holding furnaces. We can also help fix your areas of opportunity within your process because of our unique experience by providing Root Cause Analysis: Engineering Services, Modifications and Thermal Imaging of your existing equipment.

Let us help you think outside the box and provide a solution you won't find anywhere else in the industry.

GILLESPIE & POWERS, INC.

"AMERICAN OWNED – GLOBALLY KNOWN"

### GLAMA Maschinenbau GmbH

**Booth #331**

GLAMA has designed and built heavy-duty Equipment for Aluminium pot rooms, cast houses and anode rodding shops throughout the world for more than 50 years. The following type of equipment is available: - Anode Changing Vehicles - Anode Pallet Transporters - Butt Cleaning Manipulators - Coil Lift Trucks - Furnace Charging Machines - Furnace Tending Machines - Hammer Crustbreakers - Ladle Charging Trucks - Molten Metal Carriers - Tapping Trucks  
GLAMA's experience of many years of producing machines with a unique combination of advanced control and rugged, reliable construction is evident in the several hundred machines now in service. GLAMA equipment withstands the heat, dust, vibration and battering of heavy industry while delivering precise handling performance. More details: [www.glama.de](http://www.glama.de)

### GNA alutech

**Booth #437**

GNA alutech inc. specializes in designing furnaces, machinery and process control systems for the aluminium industries.

Our focus is Cathode Sealing Equipment for modern smelters and a variety of casthouse furnaces and heat treatment furnaces for primary and secondary producers. The results are major orders executed around the world.

GNA technology and equipment is in production at several major Clients including Rio Tinto Alcan, Alcoa, Alouette, Norsk Hydro, Kaiser, Alba, Sohar, MA'ADEN, THT, OARC and others.

With a strategic location in China and sales representation in Brazil and a highly qualified combined staff, GNA is well-poised to meet today's Global market needs

### Goodfellow Corporation

**Booth #101**

Goodfellow supplies small quantities of metals, alloys, ceramics and polymers to meet the research, development and specialist product requirements of science industry worldwide. The company offers two distinct services: The first meets the needs of those customers who require small quantities of our standard catalog products for immediate shipment. The second is for those who require larger quantities or further processing of the company's standard products, or who need products, which fall within our general supply capabilities. Our web catalog lists a comprehensive range of materials in many forms including rods, wires, tubes and foils. There is no minimum order quantity and items are in stock ready for immediate shipment worldwide with no extra shipping charge. Custom made items are available to special order.



## Mark Your Calendars

Make plans now to join TMS at the following events in 2014-2015

# TMS

### OTC Asia

March 25-28, 2014 • Kuala Lumpur, Malaysia

The inaugural Offshore Technology Conference (OTC) Asia, organized by 13 sponsoring societies, will bring industry professionals to Asia's oil and gas hub to meet, share knowledge, and discover cutting-edge technologies.

### OTC 2014

May 5-8, 2014 • Houston, Texas

The Offshore Technology Conference (OTC) is the world's foremost event for the development of offshore resources in the fields of drilling, exploration, production, and environmental protection.

### Hydrometallurgy 2014

June 22-25, 2014 • Victoria, BC, Canada

Hydrometallurgy 2014 will provide a forum for the dissemination of all research relating to hydrometallurgical extraction, purification, and recovery of base and precious metals.

### 2nd International Congress on 3D Materials Science 2014

June 29 – July 2, 2014 • Annecy, France

The International Congress on 3D Materials Science seeks to provide the premier forum for presentations of current interest and significance to the three dimensional characterization, visualization, quantitative analysis, modeling, and investigation of structure-property relationships of materials.

### ABM-TMS Second Pan American Materials Conference - 2014

July 21-25, 2014 • Sao Paulo, Brazil

ABM will host this second installment of the Congress in 2014 during the 69th Annual meeting of ABM, at the 70th anniversary of the organization's founding.

### The First TMS Summit on Creating and Sustaining Diversity in the Minerals, Metals, and Materials Professions (DMMM1): Honoring the First Female Member of AIME: Ellen Swallow Richards

July 29–31, 2014 • Washington, DC

Abundant research demonstrates that a diverse talent pool increases productivity, competitiveness, and creativity – but this diversity is often untapped relative to professionals in the minerals, metals, and materials communities. To address the issue, TMS is organizing this inaugural two-and-one-half day summit in 2014.

### 8th International Symposium on Superalloy 718 and Derivatives

September 28-October 1, 2014 • Pittsburgh, Pennsylvania

The 8th International Symposium on Superalloy 718 and Derivatives will cover all aspects of metallurgical processing, materials behavior, and microstructural performance for a distinct class of 718 type superalloys and derivatives.

### MS&T'14

October 12-16, 2014 • Pittsburgh, Pennsylvania

The MS&T (Materials Science & Technology) partnership of leading materials societies brings together scientists, engineers, students, policy makers, suppliers and more to discuss current research and technical applications, and to shape the future of materials science and technology.

### Energy Materials 2014

November 4-6, 2014 • Xi'an, Shaanxi Province, China

Energy Materials 2014 will provide a forum for academics, researchers, and engineers around the world to exchange state-of-the-art development and information on issues related to energy materials.

### MEMA 2015

January 11-14, 2015 • Doha, Qatar

The goal of the TMS Middle East - Mediterranean Materials Congress on Energy and Infrastructure Systems is to build synergy among researchers working on different materials applications but with similar objectives of enhancing design, sustainability, and functionality of materials.

### TMS 2015 Annual Meeting & Exhibition

March 15-19, 2015 • Orlando, Florida

TMS2015 will bring together more than 4,000 business leaders, engineers, scientists and other professionals in the materials field for an outstanding exchange of technical knowledge leading to solutions in the workplace and in society.



**Follow the @TMSociety  
Twitter account to stay current  
on all meetings' updates**

**For more information on any of these events,  
visit [www.tms.org/meetings](http://www.tms.org/meetings).**





## COMPANY DESCRIPTIONS

### Gouda Refractories

**Booth #411**

Gouda Refractories is an innovative refractory producer (refractory bricks, castables, mortar, self-flowing castables, complex pre-cast shapes) with global experience and a long track record of supplying superior quality refractories all over the world, combined with innovative installation technology for more than 100 years.

Gouda Refractories develops, manufactures, sells and installs top quality refractory linings. Gouda's solutions play an important role in non-ferrous metal (mainly aluminium), petrochemical, environmental and energy industries. Based on an industry-oriented structure and highly competent employees, Gouda Refractories guarantees an optimal support which results in efficiency and reduction of refractory cost. Gouda Refractories supplies total solutions to customers which are cost effective, state-of-the-art, and reliable. Gouda's R&D department is conducted in close co-operation with its customers and renowned research institutes. Gouda's quality assurance is based on the international ISO 9001 standard.

### Granta Design

**Booth #114**

Granta will be attending the TMS Annual Meeting & Exhibition participating in discussions on international leadership for the advancement of engineering education, research, and service to the global community. Granta's education division provides resources and support to anyone teaching materials or related topics across the full range of disciplines in engineering science and design. Granta also helps to organize the Materials Education Symposia, global events which draw together those involved in materials education.

### Hencon BV

**Booth #322**

Hencon, your global partner next-door. Hencon provides a complete range of heavy duty vehicles and vacuum technology solutions for primary and secondary aluminum smelters, mining applications and other process related industries. With locations in the Netherlands, Russia, India, South Africa and Mozambique and representations worldwide, we are able to give valuable training and maintenance support on site. Feel free to contact us for your challenges!

### Heraeus Electro-Nite

**Booth #309**

### Hycast AS

**Booth #133**

Hycast was established in 1990 by Hydro Aluminium as a spin off from Hydro R&D. Hycast provides One Stop Shop for complete casthouse solutions for competitive processes and quality end-products. Hycast supports customers to constantly achieve better quality at lower operation cost and thereby increases the competitiveness of its customers.

### Hysitron

**Booth #326**

As the world leader in nanomechanical testing, Hysitron® is dedicated to the development of next- generation testing solutions for nanoscale materials characterization. Hysitron's

comprehensive nanomechanical testing suite of in-situ techniques (including TEM/SEM Nanomechanics, heating/cooling, nanoDMA®, and nanoECR®) and modular instrument platforms will keep you at the forefront of technology. Stop by our booth to learn about our exciting new developments and for in-depth discussions with our application specialists about our latest nanomechanical testing solutions.

### ICE Publishing

**Booth #526**

ICE Science is the innovative new multi-disciplinary materials science series from ICE Publishing, the publishing division of the Institution of Civil Engineers, who have been uniting research and practice in science and technology since being granted a Royal Charter in 1828. ICE Science seeks to inspire fresh thinking in how breakthrough research can be practically applied in the areas of materials science, biomaterials, nanotechnology, energy, green chemistry, and surface engineering. Launched in 2012, the ICE Science collection comprises 5 titles, with new journals appearing annually: Bioinspired, Biomimetic and Nanobiomaterials; Emerging Materials Research; Green Materials; Nanomaterials and Energy; and Surface Innovations. For further information, visit [www.icevirtuallibrary.com/science](http://www.icevirtuallibrary.com/science).

### Innovatherm GmbH + Co., KG

**Booth #115**

Innovatherm is the competent partner and the world market leader in anode baking technology. As a subsidiary of the LINGL Company, innovatherm operates in the aluminium industry, providing full service in combustion technology for reconstruction, fine tuning and optimization of existing anode baking furnaces as well as new furnaces including dry adsorption fume treatment plants.

For this purpose, Innovatherm has developed excellent process technologies and concepts with mathematical models, special components for the combustion like burners and gas valves, and future oriented control philosophies for optimal process management as well. For best results these concepts are custom-tailored to maximize plant safety, efficiency and economics.

Latest products established in the market are:

- ProBake Advanced Firing Systems for anode baking furnaces
- ProClean Fume Treatment Plants for the aluminium industry
- ProCast Supervisory Control Systems for primary and secondary Casthouses incl. charging management, target alloy calculation and melting optimization

### International ALUMINIUM Journal

**Booth #105**

International ALUMINIUM Journal deals with all facets of aluminium's value chain from the production of the metal via its processing through to recycling. The editorial focus is on smelting and semis production including the suppliers of plant, equipment and technology. Consideration is given to economic, technical and environmental/ecological topics as well as other aspects that affect the metal and its product applications in the different target markets. Aluminium relevant research articles from companies and institutes are also published.





The publication is thus of particular interest to smelters and remelters, semis producers, foundries, fabricators and converters, metal traders, semis stock holders and research facilities. International ALUMINIUM Journal is circulated in over 40 countries worldwide – made in Germany, distributed to the world. Articles that are of global interest are published in English or bilingual (German and English).

## IOP Publishing

**Booth #530**

IOP Publishing provides a range of journals, magazines, websites and services that enable researchers and research organizations to reach the widest possible audience for their research.

We combine the culture of a learned society with global reach and highly efficient and effective publishing systems and processes. With offices in the UK, US, Germany, China and Japan, and staff in many other locations including Mexico and Russia, we serve researchers in the physical and related sciences in all parts of the world.

IOP Publishing is a wholly owned subsidiary of the Institute of Physics. The Institute is a leading scientific society promoting physics and bringing physicists together for the benefit of all. Any profits generated by IOP Publishing are used by the Institute to support science and scientists in both the developed and developing world. Go to [ioppublishing.org](http://ioppublishing.org)

## IPS Ceramics LTD

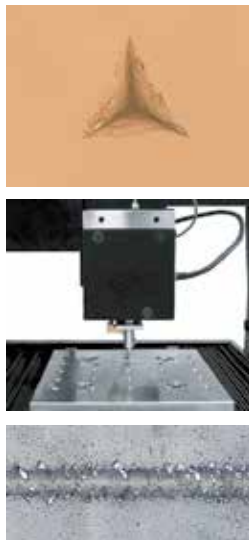
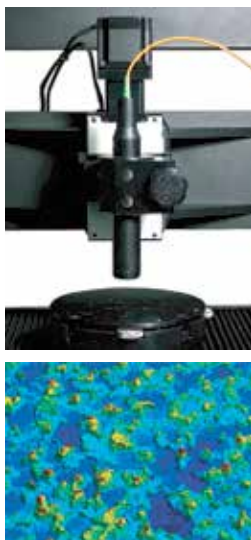
**Booth #432**

IPS is a first-time exhibitor here, showing an extensive selection of high purity alumina, machinable blocks for composites moulds and silicon carbide components designed for strong performance in tough environments. Tiles, discs, trays, crucibles, tubes, rods, spheres, insulators, seals, threaded parts, bulb holders, wire guides, plates, rings and much more. 95%/99% aluminas plus the full spectrum of SiC from clay bonded to silicon infiltrated. Thermally stable, technically proven and cost competitive. We also supply one of the broadest ranges of cordierite refractories for kiln, furnace and oven wall and roof construction, combustion superstructures and ware support purposes. [www.ipsceramics.com](http://www.ipsceramics.com)

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A Better Measure.

Profilometers | Mechanical Testers | Tribometers | Lab Services



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[nanovea.com](http://nanovea.com)





## COMPANY DESCRIPTIONS

### KAN-NAK SA

**Booth #109**

KAN-NAK SA is a company dedicated to the mathematical modelling of aluminium reduction cells, with a strong intent on cell optimization in current increase projects. Based in Sierre, Switzerland, KAN-NAK SA employees have been active over 30 years in the field of MHD and thermal modelling.

AMC-ETEC SA is a company specialized in the energetic optimization of electro-intensive circuits and developed the metal foam ECOCONTACT, an innovative solution to energy losses in electric contacts. AMC-ETEC SA is based in Cannes La Bocca, France.

### Kempe Engineering

**Booth #321**

Kempe is the largest provider of asset and maintenance services in the aluminium smelting industry. We have the most extensive product range within the industry and we are one of the top five global suppliers.

Kempe has recently completed the Anode Rodding Shop and Anode Handling System for Ma'aden Aluminium and we are currently commissioning the Bath Cooling & Processing Plant on the EMAL Phase 2 Expansion. We have also recently commissioned the Bath Treatment Plants for Hindalco's Mahan & Aditya Smelters.

Kempe works for 30 smelters across 7 regions – Australasia, Middle East, Africa, Asia, Europe, North America, and South America. We have in-house manufacturing in Australia, China, UAE & Mozambique.

Kempe has more than 1600 employees globally working in design, supply, manufacturing, construction and maintenance. Kempe will be available at TMS to discuss potential client requirements in the areas of Anode Handling & Cleaning, Rodding Shops, Bath Removal (hot & cold), Bath Cooling & Processing, and other Carbon, Potroom and Casthouse equipment.

### Laeis

**Booth #409**

LAEIS offers hydraulic presses MEGA 2500/1600 AV for production of prebaked anodes. These presses are modifications of the renowned HPF presses, supplied more than 600 times to different industries, optimally adapted to anode production requirements. With die areas up to 1800 x 850 mm<sup>2</sup> and filling depth up to 1400 mm, practically all anode formats can be produced. A vacuum system provides for optimal densification and even density distribution over the whole anode volume. The special weighing and mould filling system together with the sophisticated press control guarantees extremely high accuracy and reproducibility of anode weight and height. Depending on anode formats, production capacity is up to 50-60 t/h in a single line. The remarkably lower forming temperature results in higher green strength, avoids a separate water cooling and reduces the emission of PAH and other pitch volatiles.

### Laser Distance Spectrometry

**Booth #440**

MAYA analyzes the elemental composition of materials directly on the conveyor belt without sampling, using cutting-edge LIBS (Laser-Induced Breakdown Spectroscopy) technology.

It can be applied at all stages of exploration, mining, beneficiation and processing of raw materials, providing real-time chemistry data. It can be easily integrated with any kind of automated control system (SCADA) for any sorting/separating/crushing/dosage equipment for prompt process control.

MAYA is currently implemented in metallurgy, refractory and fertilizers industries. We have also been successfully tested in non-ferrous, coal and cement industries. MAYA analyzer can be applied for process control in mining, beneficiation and processing of iron ores, coke, coal, limestone, etc.

### Light Metal Age

**Booth #217**

Light Metal Age (LMA) is the pre-eminent magazine of the light metal world. LMA covers the technology of primary production and semi-fabrication of the light metals. Aluminum is the largest of the light metal markets and that is where LMA concentrates its attention, starting at the smelter and the entire primary production process and moving with the metal to include all semi-fabricating processes, such as extrusion, rolling, and also remelt. Basically, LMA covers the technology of aluminum processing. Circulation is international and goes to primary and secondary smelters; casthouses; extrusion operations; rolling mills; sheet, rod, and wire mills; and foundries. Some editorial topics include: potline technology, direct chill casting, secondary production, casthouse metal quality, furnaces and melting, filtration, extrusion and handling, automation and process control, surface technologies (such as anodizing), rolling mill technology, and markets for aluminum (such as automotive).

### LP Royer, Inc.

**Booth #405**

Attention workers in the metallurgical industry: Since 1934, ROYER is your one stop supplier of innovative specialized safety footwear. Unique in America, our XPAN® dual density soling technology offers a lighter rubber sole, protecting the wearer from both extreme heat and cold temperatures. Moreover, this technology offers superior traction, shock absorption and durability. Visit us and see the ULTIMATE SMELTER'S BOOT! ROYER offers a wide range of specialized products with customizable features including internal and external metatarsal protectors as well as nonmagnetic toecaps. ROYER products meet CSA, ASTM and CE standards.

### Maney Publishing

**Booth #220**

The Maney Publishing Materials Science & Engineering Collection is a portfolio of highly regarded, peer-reviewed journals providing both general and topical coverage of materials science and engineering. Original papers and reviews report fundamental and applied research on topics from functional materials for electronics/photonics, energy and biomedicine to fabrication, processing and characterization of



materials to design, properties and performances. Our growing list in geotechnical engineering, water science and technology and transportation reflects an increasing specialization in engineering. Find out more online: [www.maneyonline.com/matscieng](http://www.maneyonline.com/matscieng)

## Mecfor Inc.

**Booth #226**

Mecfor supplies fully adapted specialized mobile and stationary equipment for the toughest jobs found in the metal, rail and mining industries. Our experienced and creative team designs and builds innovative, sturdy and reliable equipment with your harsh working environment in mind. We study your operations, listen to your requests and adapt our products. We work with you to understand what you need; then we make it. Mecfor delivers on time and supports its products worldwide. Committed to productivity, reliability, and reusability, Mecfor aims to give you the best.

## Melting Solutions

**Booth #107**

Melting Solutions is a leading manufacturer of specialized process heating and Melting Equipment with over 30 years of experience offering customers a consultancy and manufacturing service for the upgrading, modification, repair of their plant with the supply of new equipment along with the overhaul of all makes and types of heating and melting equipment.

Melting Solutions has a team of engineers with unrivalled experience and knowledge covering a wide variety of equipment and has established an enviable reputation for its ability to design and custom build specialized aluminum melting recycling equipment for efficient processing of aluminum scrap.

## Metallurgy and Materials Society of CIM

**Booth #218**

We are a world class Canadian organization that serves society and the needs of professionals in the global metallurgy and materials community. The purpose of MetSoc is to serve our members, society and others involved in the research, development and application of the science and technologies for the environmentally responsible extraction, fabrication, utilization and recycling of metals and materials.

## Momentum Press

**Booth #438**

Momentum Press provides the very best information and knowledge on today's advancements in science, engineering, and applied technology. Our books in material science include such subjects as Transport Phenomena, X-Ray Fluorescence Spectrometry, and Modeling Solid-State Precipitation. All our books are written for practitioners, researchers, educational faculty, and students in print, ebooks, and in digital collections (on the ebrary platform). To learn more about our digital content collections, please visit [www.momentumpress.net/library](http://www.momentumpress.net/library).

## MTI Corp

**Booth #221**

MTI Corporation is a leading provider of material research equipment, serving the R&D community since 1994. It offers vast selections of goods from crystals, powders, wafers, raw battery materials and consumables/accessories, battery R&D equipment, automated machines, analysis hardware, and more.

## MTS Systems Corp

**Booth #227**

Engineers and researchers worldwide rely on MTS for the testing technology and expertise required to support the research, development and production of advanced metals, composites and ceramics. MTS provides solutions for aerospace, power generation, civil engineering and automotive industries. The MTS portfolio is engineered to address a full spectrum of materials testing requirements - from tension/compression to fracture mechanics to multi-axial fatigue studies at elevated temperatures.

## NanoHub.org

**Booth #436**

nanoHUB.org is recognized as a global leader in nanotechnology, providing access to simulation tools and learning materials used in both research and education. This science gateway, supported through a National Science Foundation (NSF) grant, has a growing user base of over 260,000 users annually. Explore our vast array of content on topics such as molecular dynamics, nanoelectronics, nanobio, and more. nanoHUB now features nanoHUB-U courses, 5 week modules across a variety of nano-related fields, taught by well-known faculty. These courses are designed to be accessible to students in any branch of science and engineering, without requiring a long list of prerequisites. nanoHUB is an open access platform where cutting edge content is freely available across a global community. Visit our site and create a FREE account today!





## COMPANY DESCRIPTIONS

### Nanovea

**Booth #100**

From the Irvine, CA office Nanovea designs and manufactures 3D Non Contact Profilometers, Mechanical Testers & Tribometers to combine the most advanced testing capabilities in the industry: Indentation Hardness, Scratch Adhesion, Wear Friction & 3D Non-Contact Metrology at Nano, Micro & Macro range. Unlike other manufactures, Nanovea also provides Laboratory Services, offering clients availability to the latest technology and optimal results through improvements in material testing standards

### NBD Technology

**Booth #341**

### MikroPul-Nederman

**Booth #532**

Nederman is the world's leading manufacturer of industrial air filtration equipment. We develop, produce and market systems for the extraction of dust, smoke, vehicle exhaust fumes as well as industrial cleaning. Nederman also produces and sells a comprehensive range of hose and cable reels. You can find information on our products at [www.nederman.com](http://www.nederman.com) or contact us at (800) 533-5286.

### Netzsch Instruments NA LLC

**Booth #222**

Thermal analysis & thermal properties measurement instruments, calorimeters, and contract testing services; Featuring the new DSC 214 Polyma, engineered for polymer analysis from the ground up with specially-designed furnace and sensor combination for fastest heating & cooling, new Concavus crucibles and unique sample-cutting tool. New instruments for Battery Calorimetry - introducing R&D 100 Award-winning IBC 284 Isothermal Battery Calorimeter for Large Format Li-Ion Batteries with and new MMC Nexus calorimeter module for characterization of coin-cells. Top-loading TGA and STA (DSC-TGA) with no hang-down wires, optimized for ease-of-use and for coupling to FTIR, MS, and GC-MS. Also offering DMA, TMA, Dilatometers, and DEA (Dielectric Analyzer for in-situ cure monitoring). We will also feature the new LFA 467 HyperFlash Light Flash Analyzer for measurement of thermal diffusivity and thermal conductivity.

### NFC - China Nonferrous Metal Industry

**Booth #421**

Founded in 1983, China Nonferrous Metal Industry's Foreign Engineering & Construction Co., Ltd. (NFC) is a state-owned holding company. It is listed on Shenzhen Stock Exchange since 1997. As a China leading enterprise engaged in general contracting of overseas nonferrous metal (aluminum, copper, zinc and etc.) projects and resources development, it covers a wide spectrum from technical assistance, engineering design, equipment manufacturing, construction, supervision, installation and training to mining, beneficiation, smelting, processing, etc. It has been listed on ENR as one of the top 225 international contractors and the top 200 international design firms for many years. With competitive edges in technology and rich experience in EPC contracting, NFC is capable and willing to work with world partners by providing a portfolio of services

including technologies, equipment supply and management.

### NIST

**Booth #433**

NIST/Masurement Services Division NIST Standard Reference Materials supports accurate and compatible measurements by certifying and providing over 1300 Standard Reference Materials with well-characterized composition or properties, or both. SRMs are used to perform instrument calibrations as part of overall quality assurance programs, verify the accuracy of specific measurements and support the development of new measurement methods. The Standard Reference Data Group has provided well-documented numeric data to scientists and engineers for use in technical problem-solving, research, and development. The Calibration Services are designed to help the makers and users of precision instruments achieve high levels of measurement quality and productivity.

### NKM Noell GmbH

**Booth #414**

NNSC has built a strong technical force based on specialists who individually have up to 25 years of experience in Primary Aluminium Industry for Potroom as well as for Carbon Area, as the only independent equipment supplier. For more than 40 years on the market through its constitutive companies, with more than 1,000 cranes in operation worldwide, NNSC is developing its mission for the Primary Aluminium Smelters and Nuclear plants: > To be a global supplier of handling systems, process equipment and solutions, > To integrate the client's process objectives in the design of the products through a continuous flow of mutual exchange.

### North American Construction Services, Ltd. (NACS)

**Booth #337**

North American Construction services, Ltd. (NACS) offers an integrated array of products, combustion systems and process controls, installation and engineering services, and maintenance repair services. Our dedicated industry specialists work with our customers to assure best practices in addressing all metal processing needs. Our maintenance personnel provide help analyzing small repairs and provide refractory services, combustion tuning, electrical, mechanical and steel repair. In total, NACS is uniquely positioned to provide single source supply and continued life-cycle support for melting and holding furnaces, ovens, ladle and launder systems, furnace retrofits and refractory systems.

### Olympus NDT

**Booth #103**

Portable Nondestructive XRF products from OLYMPUS NDT include handheld X-Ray Fluorescence (HHXRF) analyzers for non-destructive sorting of challenging grade separations, alloy chemistry and grade ID in seconds. They provide specific material chemistry to rapidly identify pure metals and alloy grades. HHXRFs allow for testing of literally thousands of types of materials anywhere, anytime. For scrap recycling applications, our HHXRFs provide reliable ID in 1-2 seconds for most grades. They are designed for durability – to withstand the tough processing environment. Our HHXRFs are used for





fast, reliable alloy sorting and analysis for a wide variety of ferrous and non-ferrous material. We provide optimized HHXRF configurations for cost-effective analysis when time is of the essence and when materials cannot be transported, damaged, or altered. Our X-5000 Mobile XRF analyzers offer maximum portable power with a closed beam configuration and large touch screen interface.

## Outotec Ltd.

**Booth #306**

Outotec develops and provides technology solutions for the sustainable use of Earth's natural resources. As the global leader in minerals and metals processing technology, Outotec has developed several breakthrough technologies. Outotec serves the light metals industries including the provision of cutting-edge alumina refineries and aluminum smelters. Outotec has over 50 years of experience helping customers worldwide in both segments of the aluminum process to reach their goals.

## Parker Hannifin

**Booth #320**

Parker is the world's leading diversified manufacturer of motion and control technologies and systems. Parker provides precision engineered solutions for a variety of commercial mobile, industrial and aerospace markets. We design and manufacture optimal systems using fluid connectors, hydraulics, pneumatics, instrumentation, refrigeration, filters, electromechanical components, and seals required in motion control systems. Parker's experience in the aluminum industry spans more than 40 years. Parker has equipped machinery in all phases of aluminum production including smelters, casters and extruders through grinders, rolling mills and strip processing lines, etc.

## P-D Refractories GmbH

**Booth #123**

P-D Refractories Group belongs to the most competitive suppliers of high-quality refractories for the primary aluminium industry - especially for open and closed anode baking furnaces and the barrier-brick lining of reduction cells.

The know-how we acquired in the aluminium industry over decades and advanced manufacturing technologies combined with our continuous activities to meet our customers' needs are the basis for the success of our refractory bricks in anode baking furnaces and reduction cells. Customers from all over the world rely on our well-known qualities.

## Photron Inc

**Booth #216**

Photron manufactures high speed cameras for slow motion analysis of events or phenomena that occur too fast for the eye to see or comprehend. Recording at frame rates from 60 to over one million frames per second (fps) for replay at conventional video rates of 30 fps or slower, Photron cameras are available in color or monochrome and utilize the latest CMOS sensor technology to provide unparalleled light sensitivity and image quality, regardless of the frame rate or shutter speed selected.

## Proto Manufacturing

**Booth #108**

Residual stress affects crack initiation and propagation, fatigue life, stress corrosion cracking and distortion. For over 25 years, Proto Manufacturing has been providing both measurement services and equipment for measuring residual stress in metal components. Proto's leading edge x-ray diffraction (XRD) technology is portable, cost effective and provides the necessary data for making informed decisions about the health of components. Tel: 1-313-965-2900 E-Mail: [proto@protoxrd.com](mailto:proto@protoxrd.com) Web: <http://www.protoxrd.com>

## RHI AG

**Booth #229**

Refractory competence for the non-ferrous metals industry: RHI is the world's leading supplier of high-grade ceramic refractory products and services. As a reliable and competent partner it is our constant aim to add value to the process of our customers by achieving the best price/performance ratio with our refractory system solutions.

The comprehensive program of products and services ranges from basic and non-basic mixes and bricks to prefabricated products, slide gate plates, purging plugs, as well as computer simulations like CFD or FEM. We also offer special machines, repair systems and technical equipment used to install refractory products into the various production units of the non-ferrous metals industry. Our metallurgists are active around the globe and cooperate with renowned research facilities and universities to support the improvement of metallurgical processes and furnace integrity.

## Riedhammer GmbH

**Booth #419**

The core competence of RIEDHAMMER is the design and construction of furnace plants for carbon products. The Carbon Division of RIEDHAMMER has executed more than 300 furnace projects since 1924 for the production of anodes, cathodes and electrodes in 25 countries. The furnaces are built in accordance with the individual customer's requests and the corresponding technical conditions. More than 85 years of experience and know-how guarantee a high economic efficiency and reliability of the plants.





## COMPANY DESCRIPTIONS

### Rio Tinto Alcan

**Booth #301**

Building on more than a century of experience and expertise, Rio Tinto Alcan is a global leader in the aluminium industry. We are one of the world's largest producers of high quality bauxite, alumina and aluminium worldwide and our AP™ smelting technology is the industry benchmark. Our leadership is reinforced by our:

- access to the largest and best quality bauxite reserves in the industry;
- benchmark smelting technology; and
- enviable hydropower position, which delivers significant competitive advantages in today's carbon constrained world.

Rio Tinto Alcan is the aluminium product group of Rio Tinto, a leading international mining company involved in each stage of metal and mineral production. The Group is listed on the London Stock Exchange and Australian Securities Exchange under the symbol RIO. Rio Tinto's major products are aluminium, copper, diamonds, coal, iron ore, uranium, gold and industrial minerals.

### Sawnode Technologies

**Booth #131**

### Sente Software Ltd.

**Booth #401**

We offer materials-focused software products for modeling the behavior and properties of complex alloys. The thermodynamic databases produced by Thermotech set the standard for the prediction of equilibrium and non-equilibrium structures in multi-component commercial alloys. Our latest product, JMat-Pro, is a unique software program for predicting phase transformations, physical/mechanical properties and solidification properties for complex alloys. It provides fast and robust calculations that have been extensively validated to ensure sound predictions of the properties. Our software combines industrial relevance with realistic physical models and user-friendly interfaces that work with "real" materials which are multi-component in nature and exhibit complex behavior. [www.jmatpro.com](http://www.jmatpro.com).

### Southwire SCR Technologies

**Booth #121**

Southwire's SCR Technologies provides equipment to the metals industry including continuous casting and rolling lines for aluminum and copper rod and narrow flat sections. Southwire also operates its own copper and aluminum casting lines where SCR Technologies has developed a patented ultrasonic aluminum degasser with substantial advantages over conventional degassing methods for the aluminum industry. Marketed under the brand name Ultra-D™ Degasser it efficiently removes hydrogen and inclusions including alkali metals without the use of corrosive chemicals. The Ultra-D™ Degasser can be easily integrated into die casting, foundry, continuous strip and billet casting facilities. The system consists of a degassing head, electrical controls, and an optional automatic feature which maintains consistent operation as the metal level fluctuates.

### STAS

**Booth #316**

STAS is a Canadian based company and a world leader in providing various equipment to improve the production and quality of molten aluminium. Aluminium producers who can benefit from such technologies are found throughout the wide variety of aluminium producers, from primary smelter plants down to secondary operations, including rolling mills and aluminium extruders. The company has been in business for more than 25 years with clients on all continents. Most of STAS' sales activities are managed from STAS' head office in Canada with a network of well-known agents in specific countries or geographical areas.

### Sunstone

**Booth #110**

Sunstone is the largest anode exporter and one of the largest merchant anode manufacturers in China. It owns and operates two anode production facilities with an annual capacity of 520,000 metric tons. More than half of Sunstone's annual capacity is exported to more than 20 aluminium smelters all over the world. The company holds ISO 9001, ISO 14001 and OHSAS 18001 certifications. Other products and services supplied by Sunstone include anode paste, calcined pet-coke, cathodes, cold ramming paste, other lining materials and all kinds of equipment for aluminium smelters.

### Techmo Car

**Booth #204**

Techmo is an Italian independent company focused in the engineering and production of special mobile and stationary equipment for the aluminium and non ferrous metals industry. The full range of purpose designed machines covers different types of equipment performing a large number of operations in pot-rooms, rodding shops and cast-houses. The Company's aim is to provide the most innovative, rational, cost effective and user friendly technical solutions. Among the most significant families of mobile equipment are the Tapping Vehicles, Anode Transporters, Crucible Transporters and Tilters, Alumina/ AlF<sub>3</sub> Feeding Vehicles, Furnace Charging Vehicles and Furnace Tending Vehicles, Multipurpose Anode Changers and Crust Breakers. Beside its line of purposed designed vehicles, Techmo provides a number of stationary equipment such as Crucible Cleaning Machines, the Crucible Tilting stations and the Anode Butts Cleaning Stations.

### Tenova Core

**Booth # 219**

Tenova Core, a multi-business unit Tenova company, based in Pittsburgh, Pa., is a worldwide leader in the supply of loose carbonaceous material calciners based on rotary hearth technology. These furnaces are used for the processing of petroleum coke, coal, formed coke briquettes and various other carbon based products. Tenova Core representatives will also be available to discuss our advanced aluminum furnace product line.

Tenova Core provides a wide range of heat treating, reheating and specialty furnaces as well as technical and spare parts services



## Thermo-Calc Software

**Booth #427**

Thermo-Calc Software is a leading developer of software and databases for calculations involving computational thermodynamics and diffusion controlled simulations. Thermo-Calc is a powerful tool for performing thermodynamic calculations for multicomponent systems. Calculations are based on thermodynamic databases produced by the CALPHAD method. Databases are available for steels, ferrous based slags, Ti, Al, Mg, Ni-superalloys and other materials. Programming interfaces are available which enables Thermo-Calc to be called directly from in-house developed software or MatLab. DICTRA is used for accurate simulations of diffusion in multicomponent alloys; applications include:

- Homogenization of alloys
- Microsegregation during solidification
- Coarsening of precipitates
- Joining. TC-PRISMA: a new tool for predictions of concurrent nucleation, growth, dissolution and coarsening of precipitate phases.

## Thorpe Technologies, Inc.

**Booth #508**

## TMS Information Center

**Booth #118**

The TMS Information Center consolidates everything TMS in one convenient location. It is your destination to find how to get the most out of your TMS member benefits, learn about TMS's technical initiatives, be inspired by the work of the TMS Foundation, and discover new opportunities as a TMS volunteer.

## UES, Inc.

**Booth # 215**

RoboMet.3D® is a fully automated, serial sectioning system that generates two-dimensional data for three-dimensional reconstruction. With sectioning rates up to 100 times faster than manual sectioning, Robo-Met.3D collects data in a matter of hours, not months. Robo-Met.3D enables more time for data analysis and characterization and ensures repeatable and accurate data is collected in an efficient and cost-effective manner. UES, Inc. is an innovative science and technology company that provides its industry and government customers with superior research and development expertise. We create products and services from our technology breakthroughs and successfully commercialize them. STOP BY BOOTH 215 TO SEE ROBO-MET.3D IN ACTION!





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