

SPRAYTIME®

Published by *The International Thermal Spray Association*
Volume 14, Number 3 Third Quarter 2007

Thermal Spray Pavilion Planned for 2007 Fabtech International and AWS Welding Show



Mark your calendar now . . .

In collaboration with the American Welding Society (AWS), the Society of Manufacturing Engineers (SME), and the Fabricators and Manufacturers Association (FMA), The International Thermal Spray Association is proud to announce a **Thermal Spray Pavilion** at the **Fabtech International & AWS Welding Show November 11-14, 2007** at the McCormick Place in Chicago with an estimated attendance of 17,000.

This show is the largest event in North America dedicated to showcasing a full spectrum of metal forming, fabricating, tube & pipe, and welding equipment and technology. Thousands of buyers and sellers from around the world will gather at McCormick Place to exchange products and services, form new business relationships, problem-solve, and share best practices.

Sunday, November 11th is Thermal Spray Day

Presentations at the Innovation Theater on Sunday are:

Cold Spray Technology and Equipment
Pump Repairs - Using Welding and Thermal Spray
Welding vs. ArcSpray: A Comparison of Wire and Deposits
The Consotium of Thermal Spray Technology
The History and Future of Thermal Spray - From the Frying Pan to the Stars

The Thermal Spray Pavilion of more than 4100 sq ft is comprised of the following exhibitors/booth numbers:

Air Products and Chemicals, Inc.1122
Asiamet1100
BASF Catalysts LLC Surface Technologies 1106
Center Line (Windsor) Ltd.1133
Cincinnati Thermal Spray Inc.1117
Durum USA1105
Eutectic Corp.1132

F. W. Gartner Thermal Spraying1125
Genie Products1111
HAI Advanced Material Specialists1104
Hayden Corp.1126
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IMR Test Labs1131
International Thermal Spray Association .1107
Lineage Alloys Inc.1129
Metallisation Ltd.1123
Nation Coating Systems Inc.1102
Noise Barriers LLC1108
Osram Sylvania Inc.1101
Parker domnick hunter1099
Polymet Corp.1095
Praxair Surface Technologies1110
Saint Louis Metallizing1098
Semicon Precision Industries1121
Sulzer Metco (US) Inc.1094
Thermal Spray Technologies Inc.1096
Thermion Inc.1124

The State University of New York at Stony Brook Thermal Spray Research Center and the National Research Center Canada will also be representing the Thermal Spray Industry at the Workforce Development Pavilion.

We encourage you to visit this special exposition highlighting the thermal spray industry to the AWS, SME, and FMA attendees. (*see advertisement page 11*)

Be a part of this exciting manufacturing tradition on:

Sunday, November 11 11:00am - 4:00pm

Monday, November 12 9:00am - 5:00pm

Tuesday, November 13 9:00am - 5:00pm

Wednesday, November 14 9:00am - 3:00pm

For event information and online registration, visit www.aws.org/expo and www.fmafabtech.com and www.sme.org/fabtech

Using Pleated Media Cartridge Technology To Optimize Dust Collector Performance

By Lee Morgan

Cartridge dust and fume collectors are the most popular collection systems for thermal spray operations today. High efficiency cartridge collectors are compact; they operate at low pressure drop; and they can be designed to produce emissions below the new OSHA limits for hexavalent chromium (Hex Cr) and other toxic metal dusts.

However, many users of cartridge dust collectors mistakenly think of the replaceable pleated filter cartridges as commodity items. In point of fact, cartridges can vary markedly in design and performance. Using the right cartridges in your dust collector can ensure compliance with the Hex Cr exposure limit of 5.0 micrograms per cubic meter and can also result in energy savings, reduced maintenance, and enhanced system reliability.

Horizontal versus vertical cartridge mounting

The position in which a filter cartridge is mounted in the dust collector has a major impact on the effectiveness of the pleated media within. Sometimes filter cartridges are mounted on their sides. The biggest problem with horizontal mounting is that the dust does not get cleaned off the top of the filter, causing the dust to blind at least one third of the filter. This dust accumulation increases the air-to-media ratio (which is determined by dividing the process air volume by the filter's surface area) and can cause premature filter failure. One way to reduce this problem is to rotate the



Figure 1 shows a top-loading problem in a horizontal filter system.

filters monthly.

In addition, because all of the incoming dust is dumped on top of the filters, there is no chance for pre-separation of heavy or abrasive particles from the air stream. This situation can shorten filter life or, in spark-generating applications, pose a fire hazard because any spark entering the collector will come into direct contact with filter cartridges. (Figure 1 shows a top loading problem in a horizontal filter system.)

The newest vertically mounted systems use a high, side entry inlet that cross-flows the air into the dust collector at the same height as the cartridges. The air is first sent through a series of staggered channel baffles that distribute the air while separating out larger particles and dropping them straight into the hopper. This cross-flow effect combines the benefit of a downflow-style air pattern without turning the filters on their sides and wasting a large portion of the pleated media.

Pleated media selection factors

An ultra-high efficiency, flame retardant media is recommended for thermal spray operations. Polyester/silicon blended media with a melt-blown synthetic applied to the surface will deliver up to MERV 16 efficiency, helping meet the OSHA threshold for Hex Cr. This media also offers a

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The International Thermal Spray Association is pleased to announce that it will continue to provide *SPRAYTIME* free-of-charge to the thermal spray community. If you have been receiving *SPRAYTIME*, you will continue receiving *SPRAYTIME*. If you or your colleagues wish to sign up for a free subscription, visit www.spraytime.org.

SPRAYTIME will continue to grow by reaching across other industries (AWS, SAE, NACE, ASME, etc.) for pertinent information-sharing and additional readership.

As a result of this collaboration with other professional industries, open enrollment and expanded readership, we expect our circulation to increase significantly to 10,000 in this decade.

ITSA is proud of starting *SPRAYTIME* in 1992 and the future expansion plans for news and circulation.

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International Thermal Spray Association

Mission: To be the flagship thermal spray industry newsletter providing company, event, people, product, research, and membership news of interest to industrial leaders, engineers, researchers, scholars, policy-makers, and the public thermal spray community.

Kathy M. Dusa Managing Editor

Paul Kammer Technical Editor

Marc Froning Editor

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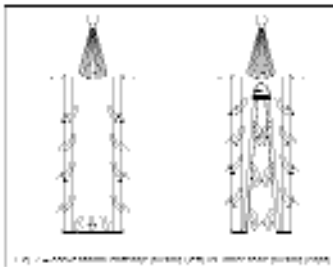
smooth surface for good dust release characteristics, facilitating cartridge cleaning.

Use caution when comparing the media area (stated in square feet or meters) contained in different filter cartridges. Although it is useful to compare the total media area, it is actually more meaningful to know usable media area. And do not rely solely on efficiency claims that are stated in percentages (e.g. 99.5% efficiency). OSHA limits are measured not in percentages but in micrograms per cubic meter, so you must make sure the amount of dust in the air is less than established limits. A reputable dust collector manufacturer should provide a guarantee that emissions will be below the allowable threshold.

Advances in pleat configurations

A standard filter cartridge contains a pleated media pack formed into a long cylinder and sealed at top and bottom with end caps. In a typical cartridge, the inner section of the cylinder is essentially unused space, where a natural "cone" of dead air forms during operation. Through the years, manufacturers have sought ways to enhance cartridge dust-holding capacity and service life.

A recent solution has been the advent of internal cone designs that turn the unused core of the cartridge into additional filtering space. An inner cone of pleated filter media adds 20-30% more usable media area to the cartridge. This extra filtration area reduces the air-to-media ratio so that the media does not have to work as hard to filter the dust.



On the standard cylindrical design (Figure 2, left), a significant portion of the pulse energy is wasted in pulsing the bottom pan of the cartridge. With an inner cone design (Figure 2, right), the cone does not use any of the energy that

is normally used to clean the outer media pack: It simply makes use of the energy that would have been wasted pulsing the bottom pan of the filter in conventional cartridge systems. The result is lower pressure drop, which leads to fewer cleaning pulses. Both of these effects reduce energy consumption and extend filter life. In addition, the reverse pulse energy forces light dust particles directly into the hopper and out of the air stream, preventing dust re-entrainment.

Pleat spacing and other design considerations

Another important consideration is the actual spacing of the pleats in the filter cartridge.

Since the inception of pleated dust collection cartridges in the mid-1970s, a problem with their use has been proper spacing and separation of the pleated media, to allow the dust that builds up in the pleats to be pulsed back off the filter with a reverse blast of compressed air. Most cartridges are made using either rotary or dimple-type pleaters that crease the media into an "S" shape, pinching off the bottom half of the pleat and thereby limiting its usability.

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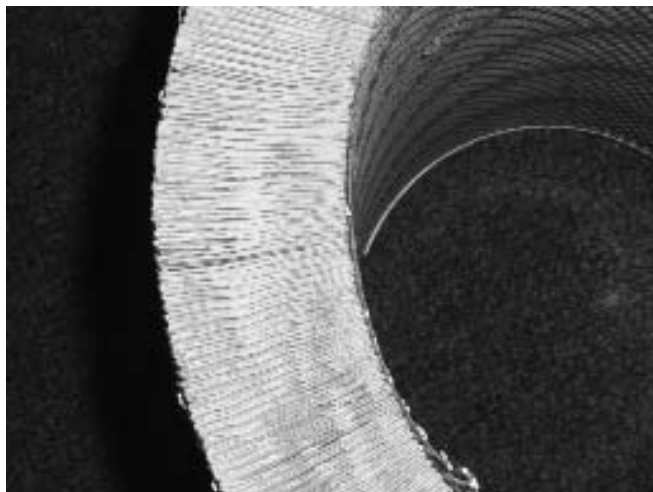


Figure 3 above shows a close-up of cartridge media produced in this manner. The pleating method used here, and the resulting tight compression of pleats in the cartridge, render much of the surface area unavailable for filtering, allowing dust to remain trapped within the filter even after pulse cleaning.

A newer pleating technology makes use of hot melt separators that open up the full length of the pleat, allowing the entire depth of the pleat to be utilized. This design allows significantly higher air flows per sq ft of media than what has been achieved in the past.



The media pack in Figure 4 above shows an open pleat configuration. Virtually all the media surface is exposed to the air stream, so the filter holds more dust between cleaning pulses. The breathable design also reduces pressure drop and improves dust release characteristics during cleaning, using fewer pulses (and therefore, less energy).

Tests have shown that open pleat cartridges, used in combination with HEPA safety filters, can achieve emission levels as low as .012 microgram per cubic meter on Hex Cr - ensuring OSHA compliance and allowing recirculation of air downstream of the collector for energy savings.

For more information, contact Lee Morgan, president of Farr Air Pollution Control, 3505 S. Airport Road, Jonesboro, AR 72401, tel: 800.479.6801 or 870.933.8048, fax: 800.222.6891 or 870.933.8380, web: www.farrapc.com, email filterman@farrapc.com

Interviewing The Manipulator, The Language

Second in a Series from Plasma Powders and Systems

Which manipulation system is best for your shop or specific application? Manipulation involves motion control and positioning. Many manipulator configurations have been used in thermal spray. A thermal spray manipulation "system" can be as simple as a fixed-speed turntable or as complex as two robots working together for the coating process; one holding the part and the other the gun. What is available and what are the pros and cons of each? This question can be approached by "Interviewing" the different candidates that apply for the position of Manipulator.

Before this though, it would be good to review the terminology, the dialog, of The Manipulator, especially when robots are considered. As with many technical specialties, the robotics industry has their own terminology. Terms that are used include:*

Absolute Encoder. Encoders are the electronic devices that keep track of the position of each robot joint. Simple encoders need to be "told where they are" each time the system is powered up. Absolute encoders retain knowledge of their position, even when the system is turned off. For some systems, batteries are used with the encoders to supply continual power for position records in order to convert a standard encoder into an absolute encoder.

Articulated. A term used for a robot consisting of segments held together by joints, much like the human arm. Most off-the-shelf robots are of the articulated type.

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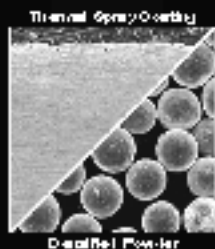
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Auxiliary Axis. Standard robots can also be provided with an additional axis. For example, the robot supplier can provide a robot with an additional motor and associated control for use with a turntable.

Axis. This term is typically defined as the center around which something rotates (syn: the axis of rotation). However, it has been somewhat modified by the motion controls industry to include linear motion ("A linear axis"). For example, a five-axis robot mounted to a slide with position control is considered a six-axis robot. In addition, in this industry, the term is usually applied only to positioning devices. A rotary turntable without position control is not considered an axis.

Cartesian Robot or Gantry Robot. Unlike the articulated robot, a slide is used for each axis of the robot.

Degrees of Freedom. This term is used in place of axis. A five-axis robot is also stated as having five degrees of freedom.

End-effector. Also called end-of-arm tooling. For the thermal spray industry, this is often the gun but, when the part is held and moved by the robot, this is the device that holds the part while it is being sprayed.

Payload. This is the total weight (including fixture, hoses and cables) that can be mounted to the end of the robot without degrading the performance of the robot (operating within the specified levels of acceleration).

Reach. This is the maximum distance from the first axis of the robot to the end of its tool mounting plate. It is important when evaluating the area that can be sprayed.

Robot. This is a machine that can be programmed to perform motions with at least three axes. (An elevator is not a robot)

Wrist. This is usually the next-to-the-last axis of the robot. The motion is like the motion of your wrist. The last axis is usually pure rotation, like spinning the dial on a wall safe. (Next, considering the various applicants for The Manipulator.)

For a comprehensive glossary list, go to www.robots.com/glossary.htm.

For more information, contact series author, Dale Moody via email dalermood@aol.com

(The first article appeared in SPRAYTIME second quarter 2007 issue.)

Technical Program Open To Public Next Program in Hawaii

The *International Thermal Spray Association* welcomes non-member participation at the Technical Program portion of their membership meetings. ITSA membership meetings are typically three-day events with a thermal spray technical program on Friday from 8:00 am through 5:00 pm.

The February 15, 2008 Technical Program will be held in Waikoloa, Hawaii. The cost for non-members to attend is \$400, which includes breakfast and lunch.

For more information, contact Kathy Dusa via email kathydusa@thermalspray.org

WHERE IS YOUR ARTICLE?

You and your company have the opportunity to help design the content of your thermal spray community newsletter. Send news and articles via email to spraytime@thermalspray.org

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ITSC 2007 Beijing

The May 14-16 ITSC 2007 in Beijing has been highly successful, with more than 400 conference attendees, 45 exhibiting companies and more than 300 "expo only" attendees.

ITSC is organized by the ASM Thermal Spray Society, the German Welding Society (DVS) and the International Institute of Welding (IIW).

Best Paper Awards

Processing and Properties of Yttria-Stabilized Zirconia TBCs Produced Using Nitrogen as Primary Plasma Gas

Basil Marple, Rogerio Lima, Christian Moreau, Silvio Kruger, National Research Council of Canada, Boucherville, Canada; Liangde Xie, Mitch Dorfman, Sulzer Metco (US), Westbury, NY

Properties and Performance of High Purity Thermal Barrier Coatings

Mitch Dorfman, Liangde Xie, Westbury, NY; Amaia Ciptria, Paul Shiladitya, Igor Golosnoy, T.W. Clyne, Cambridge University, Cambridge, U.K.; Weiquang Chi, Vasudevan Srinivasan, State University of New York at Stony Brook, NY

Influence of Annealing Treatment on the Photocatalytic Performance of the Nanostructured TiO₂ Coating Deposited by Vacuum Cold Spray

Guan-Jun Yang, Chang-Jiu Li, Sheng-Qiang Fan, Ling-Zi Zhang, Cheng-Xin Li, Yu-Yue Wang, Xi'an Jiatong University, Xi'an PRC

Evaluation of Strain Field Around Impacted Particles by Applying Electron Moiré Method

Makoto Watanabe, Sathoshi Kishimoto, Kentaro Shinoda, Seiji Kurodo, National Institute of Materials Science, Ibaraki, Japan

Sintering Kinetics of Plasma Sprayed Zirconia TBCs

Amaia Ciptria, Igor Golosnoy, T.W. Clyne, Cambridge University, Cambridge, U.K.

Influence of Plasma Instabilities in Ceramic Suspension Plasma Spraying

Ramuntxo Etchart-Salas, V. Rat, J.F. Coudert, Pierre Fauchais, University of Limoges, Limoges, France

Fast Modeling of Phase Changes in a Particle Injected Within a D.C. Plasma Jet

Pierre Fauchais, Fadhel Ben Ettouil, Olga Mazhorova, Bernard Pateyron, Helene Ageorges, Mohamed El Ganaoui, University of Limoges, Limoges, France

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Microstructure Control of Thermally Sprayed Co-Based Self-Fluxing Alloy Coatings by Diffusion Treatment

Kazunori Sakata, Fujikikosan Corporation, Japan; Kosuke Nakano, Hirofumi Miyahara, Kyushu University, Japan; Yasuhiro Matsubara, Kurume National College of Technology, Dazaifu, Japan; Keisaku Ogi, Oita National College of Technology, Oita, Japan

Effect of Microstructure of HVOF-Sprayed WC-Co Coatings on Their Mechanical Properties

Pornthep Chivavibul, Makoto Watanabe, Seiji Kurodo, National Institute of Materials Science, Ibaraki-ken, Japan

Erosion Properties of Plasma Sprayed Ceramic Coatings Against Process Plasma in Semiconductor Production Equipments

Junya Kitamura, Hiroyuki Ibe, Hiroaki Mizuno, Isao Aoki, Fujimi Incorporated, Kakamigahara, Japan

Rapid and Continuous Deposition of Porous Nanocrystalline SnO₂ Coatings with Interpenetrating Pores for Gas Sensor Applications

Chun-Lin Chen, University of Toronto, Toronto, Canada

To Achieve Epitaxy Thermal Spraying by Substrate Melting

Lili Zheng, Guanghua Wei, Wei Zhang, Hui Zhang, State University of New York at Stony Brook, NY

continued on page 8

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Armelle Vardelle, Cecile Marchand, Christophe Chazelas, University of Limoges, Limoges, France

Papers Recognized by the Chinese Organizing Committee

Development of Simulating Tester for Evaluation of Build-Up Characterizing in CAL Hearth Rolls

X.O. Huang, R.J. Wang, T.J. Zhang, C. Zhang, J.L. Cheng, Surface Engineering Research Institute of CAAMS, Beijing, People's Republic of China; Y.M. Li, G. Bi, Y.G. Zhang, X.H. Tan, Shanghai BaoSteel Equipment Maintenance Co., Ltd., Shanghai, People's Republic of China

Influence of H_2SO_4 Treatment on Biological Properties of Plasma Sprayed Titania Coatings

C. Ding, B. Li, X. Liu, Shanghai Institute of Ceramics, Chinese Academy of Science, Shanghai, People's Republic of China

During the Plenary Session, DVS Managing Director Klaus Middeldorf made welcoming remarks.

A distinguished Plenary Speaker was Mr. Rongliang Hao, Vice President of Shanghai Baosteel Equipment Maintenance Company, Limited. Mr. Hao is Executive Director of the Thermal Spraying Committee of China Surface Engineering Association.

A distinguished Plenary Speaker was Mr. Henri Steinmetz,

President, Sulzer Metco, Winterthur, Switzerland. Mr. Steinmetz has been President of Sulzer Metco since 2004.

For information on ITSC 2008, visit www.dvs-ev.de/itsc2008

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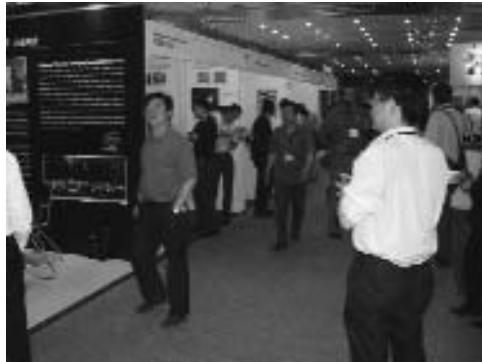
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NCS Bonds with Stronghold

The joint research and development projects between Nation Coating Systems (NCS) and Stronghold Coatings has started to grow into several large projects. The completion of the Met Lab at NCS has given Stronghold the ability to review coatings and make modifications for various applications. The actual projects have grown from nano particle applications to new improved sealers for thermal sprayed coatings.

One major project is with RNT, which was covered in an article in the American Welding Society magazine on a new material, that will enable soldering and brazing without a torch. NCS is making the development parts for RNT for trials of their material on various parent materials for all types of applications. Stronghold has been doing trials and development of which coating process will give the highest bond strength with the lowest cost.

Another major application project is utilization of Dichtol as a sealer for testing with the Navy Research Lab. This coating has passed several tests and is now being looked at by several major organizations. The coating is being looked at for many types of applications and some information is not open for publication. Stronghold along with NCS has made several improvements in the application such as removal of a former HAPS material (xylene) which is now no longer used. The newest work being done with Dichtol is removal of just about all of the VOCs in the solvent system. This is still under trial and no samples are ready for testing

until Stronghold has finished its homework.

The new material Liquid Mask, which is being used by several thermal spray shops, is almost ready for a major change. Stronghold is now testing a new version of Liquid mask which has no solvents. Many shops liked the new masking material when it first came out but the solvent content made it not a material that they wanted to use. The new version will soon be ready for testing by customers and a notice will be sent out for possible shops that are interested. NCS is the current test site and with a few modifications it will meet their application requirements.

The above are some of the joint projects performed by the two companies. Applications vary from commercial to military. If every thing goes right development will start for a major aircraft engine manufacturer. Doing development for actual applications and not for just test or a paper has paid off for the both companies.

For more information, contact Larry F Grimenstein, Nation Coating Systems, Inc., email: ncslgrimen@aol.com or visit website www.nationcoatingsystems.com

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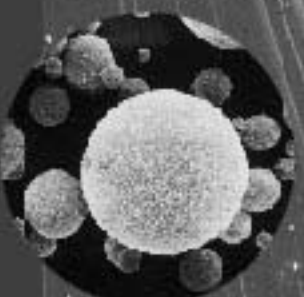
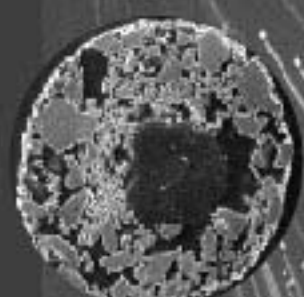
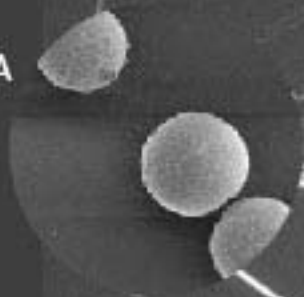
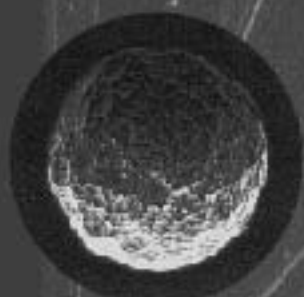
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The Thermal Spray Society's Online Community Forum is Up and Running!

Despite a challenging start for former TSS list-serv users, the new Forum is now operating with slightly different performance than what many were used to.

Because the Forum is now searchable, and therefore much more valuable for registered users and members, the new Forum technologies operate differently than did the older list-serv.

In order for the content Forum to be searchable, it must be archived on the TSS Community. This means that the content of messages are collected and published in the community. Individual delivery of messages and responses, to an inbox, is something users should expect. From time to time, the discussions could be very vigorous and at other times, rather slow, depending on the interest level in the discussion threads.

The Thermal Spray Society Members welcome visitors to register and access the new Forum, as well as exploring the new online community.

To subscribe:

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Select 'Community Preferences'

Check the box marked 'TSS Forum' and save changes. An email with instructions will be mailed to your email account to ensure the delivery address.

If you have trouble with login or with subscribing to the Forum, please contact Customer Service: CustomerService@asminternational.org or call: 440/338-5151 ext. 0, or 800/336-5152 (U.S. and Canada), or 800/368-9800 (Europe)

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A publication of the *ASM Thermal Spray Society*

Abstract

Comparison of the Thermal Transport Property Measurements of Thermally Sprayed Coatings by the Laser and Xenon Flash Technique *Weiguang Chi, Sanjay Sampath, and Hsin Wang*

Development of precise and reliable measurement methods is an important step in the study of the thermal transport property of inherently complex systems such as thermally sprayed coatings. In this study, the applicability and repeatability of both the laser and xenon flash techniques have been investigated through the measurements on the coatings made from ceramics, metals, alloys, and composites. For the four series of material systems, issues such as the effect of powder morphology, coating thickness, spraying technique, chemical composition, and oxidation on the thermal diffusivity as well as the corresponding measurement repeatability are assessed. This investigation provides information necessary for precise and reliable characterization of the thermal transport property of various thermally sprayed coatings.

Read the entire article in the September 2007

Journal of Thermal Spray Technology.

For more information, visit www.asminternational.org/tss

Editor: Christian Moreau

Associate Editors: Kendall Hollis, Seiji Kuroda, Lech Pawlowski, and Armelle Vardelle

Journal of Thermal Spray Technology Volume 15 2006 Best Paper Award

Hypersonic Plasma Particle Deposition - A Hybrid Between Plasma Spraying and Vapor Deposition

J. Hafiz, R. Mukherjee, X. Wang, P.H. McMurray, J.V.R. Heberlein, and S.L. Girshick, University of Minnesota, USA.



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ITSC 2008 follows the successful path of the previous events in Basel (2005), Seattle (2006) and Beijing (2007). It presents the latest status of application, research and development in the field of thermal spray.

Maastricht is a bustling town of some 180,000 inhabitants. Its twice-weekly market and busy shops attract customers from Belgium and Germany and it draws numerous tourists and businessmen. Current policies emphasize Maastricht's central location in Europe and its European image. In 1981 and 1991 the city hosted the summit meeting of the European Community heads of state. The creation of the "Euregio" area, centered on the cities of Aachen, Liege and Maastricht, is a sign that Maastricht is returning to the central European location it occupied during the reign of Charlemagne.

ITSC 2008 will take place at the MECC Maastricht Congress Centre. MECC Maastricht is a state-of-the-art conference and exhibition center constructed according to the "fourth-generation" concept. Visitors can attend ITSC 2008, dine, and also sleep there. Everything is under one roof.

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Metallisation Arc 170 Protecting Air Bridges in New Zealand

Metallisation's New Zealand distributor, Metal Spray Suppliers (NZ) Ltd, has supplied equipment and supplies to Edmonds Industrial Coatings Ltd of Wanganui, for its contract to apply a coating system for airport air bridges in New Zealand. Edmonds has won the contract from J & D McLennan Ltd (ael.co.nz), a pioneer and leader in the design, manufacture and maintenance of Airport equipment for the whole of the South Pacific rim. Edmonds Industrial Coatings is a leader in the field of anti-corrosion protection for a variety of industries in New Zealand.



With increased air travel and a diverse range of commercial passenger jets landing at New Zealand airports, robust, attractive air bridges are a necessity. The air bridges also need to be versatile and able to accommodate current and new generation commercial jets, particularly the new Airbus A380.

Typically, Pacific Rim airports are often located on the coast and air bridges are exposed to this harsh marine environment. Coating systems have to provide long-term, advanced corrosion protection and be visually attractive. McLennan specified a finish and quality to the same high standard as automotive bodywork. This meant creating a zinc anti-corrosion coating that was smooth enough to facilitate a functional, yet decorative, paint system and protect the air bridge against the elements.

Edmonds accepted the challenge, confident that its high process standards and extensive experience would allow them to meet the tight specification and deliver the high quality surface coating required. Edmonds asked Metal Spray Suppliers (NZ) Ltd to provide an Arcspray system that would:

- Apply a smooth high-quality zinc layer at the fastest rate possible, without having to sand the surface smooth after spraying
- Be flexible and far reaching enough to minimise equipment repositioning and allow the operator good access to the air bridge

- Be ultra reliable in a hostile blast and spray environment
 - Be economical to use and easy to operate and maintain
- The Metallisation Arc 170 push/pull system, with its unparalleled spray rates and 10-metre reach, was undoubtedly the only choice for this type of application. The Arc 170 is the fastest hand held anti-corrosion system available providing a high deposition rate and efficiency, which doesn't compromise the coating quality or integrity. Edmonds opted for the Arc 170 unit in order to honour its large workload and minimise turn around times. The Arc 170 fast spray rate ensures that blast prepared surfaces are coated as quickly as possible, keeping oxidation and contamination of the interface to an absolute minimum. This is critical in order to achieve the strongest possible bond to the surface.



Since Edmonds implemented the Arc 170 equipment, processing time for all anti-corrosion surface treatments has been cut by half to two days and has eliminated time consuming manual sanding. Edmonds Operations Manager, Craig Thurston, says: "The Arc 170 system is an amazing machine and without doubt the best investment made by Edmonds during my service."

Air bridges come in many forms to suit the diverse types of passenger aircraft. Larger air bridges are available in 2 forms, the Apron drive with its distinctive 'bulb' is mobile, whereas the LPS is fixed and slides out. The Apron drive is the most versatile and the widely used air bridge, it has a telescoping passageway that can be driven from a parked position beside the terminal to the aircraft itself. The Apron drive will serve many sized aircraft ranging from a Bombardier CRJ all the way up to the new Airbus A380. The A380 version has a special modification to the cab and a longer lifting column. Both types are typically split into three sections, each section is approximately 12 to 16 metres long.

A complete air bridge can be up to 27 metres long. Fortunately, with the new Metallisation Arc 170



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equipment, and the space available at its extensive facility, Edmonds can complete the anti-corrosion treatment of the air bridges in one process. The complete turnaround time for an Apron drive air bridge is ten days. Resene Paints, working in conjunction with McLennan, developed and specified the post zinc Arcspray paint system that would complement and work in synergy with the zinc layer. Resene proposed a low build duplex paint system that would incorporate all three methods of corrosion protection available - sacrificial, inhibitive and barrier. Using the three-mode protection method the process sequence was:

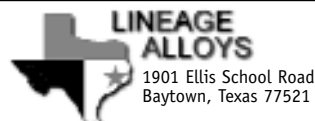
- Surface preparation to SA3 abrasive grit blast
- 100 micron zinc Arcspray delivered with one pass of the Arc 170 pistol
- Seal/Build coat x two with Resene's Zinc Phosphate inhibitive epoxy system
- Resene's low sheen urethane top coat x two - developed to suppress reflection from lights at the airport to aid the pilot's vision when taxiing the aircraft



to the bridge

The Resene paint system is sprayed directly onto the zinc in its 'as sprayed' condition. The smoothness of the Arc 170 zinc coating eliminated the need for any dressing or pre-paint preparation, which saved time, labour and expense. The completed air bridge with its attractive yet functional anti-corrosion coating system is then ready for a very long service at any one of New Zealand's airports.

The first air bridge using this innovative system was installed at Wellington Airport in October 1997 and since then air bridges have been coated and supplied to Auckland, Melbourne and Sydney, with many more proposed for the Australasian region. Nearly a decade on, the first air bridge coating system is performing with ease in the harsh conditions. J & D



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McLennan Ltd guarantees the air bridge coating system for 20 years. Edmonds has now provided anti-corrosion protection for more than 40 Air bridges.

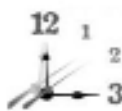
Metal spraying or thermal spray is commonly used today to protect steel structures from corrosion. In excess of 200 tonnes of zinc wire is sprayed annually in New Zealand to protect steel structures in many different types of environments, from inland to submerged conditions. This represents an area of 200,000 m² with a coating thickness of 75 micron or 100,000 m² with a coating thickness of 150 microns.

Arcsprayed zinc provides a superior, thicker, greener alternative to galvanising that is not limited by tank size and does not distort the work piece. Coating thickness may be varied from place to place to provide extra protection in critical areas. The process is not limited to zinc and the coating material may be selected specifically for the environment. The coating can be applied on site, without creating any effluent disposal problems. The system requires a reduced stock of zinc, which means working capital is not tied up in a molten zinc bath. Further savings are made, as fuel is not needed to keep zinc molten when the process is not operational. Metal spraying is also used to restore corrosion protection on damaged areas of welded galvanised steel.

For further information on surface coatings or Metallisation, please contact Stuart Milton, email: sales@metallisation.com, tel: + 44 (0) 1384 252 464 or visit www.metallisation.com

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Thom Passek, tspassek@asminternational.org

R.A. Miller Materials Engineering - Indianapolis, IN USA
www.ram-mat.com 317.259.7632
Mr. Robert Miller, robert_a_miller@mymailstation.com

State University of New York at Stony Brook
Stony Brook, NY USA
www.matscieng.sunysb.edu/tsl/ctsr 631.632.45678

Ms. Lysa D. Russo, lysa.russo@sunysb.edu

The Zanchuk Group, LLC - Concord, NH USA
www.zanchuk.com 603.226.3712
Mr. Val Zanchuk, zanchuk@comcast.net

International Thermal Spray Association Welcomes New Members



Advanced Materials and Technology Services, Inc. has joined the International Thermal Spray Association.

Advanced Materials and Technical Services (AMTS) provides technical and business products and services to support companies on-going operations, improve products, increase efficiency, and reduce costs. AMTS provides advanced materials and technology expertise for existing operations and products lines as well as for growth of new products.

AMTS customers include spray shops, materials suppliers, corporations incorporating thermal spray products into their product line or companies investigating the thermal spray industry, universities and companies just entering the thermal spray industry.

For more information, contact ITSA company representative Robert Gansert, rgansert@adv-mtv.com

Thermion AVD 150™ Mini-Arc Spray System

Designed to spray 1/16 in. wires, this lightweight portable system features Arc Voltage Drive™, Thermion's latest patented technology. The motor will automatically adjust its speed to maintain a perfect arc gap, which in turn produces the highest quality coatings available from twin wire arc spray.

The Thermion AVD 150™ Mini-Arc Spray System has been developed to meet the corrosion industry needs of a small, lightweight system to do touchup metallizing in the field, such as weld joints or damaged hot dipped galvanizing. Weighing in at 40 lbs and using 5 lb spools of spray wire the system is easily moved about the job site. The power requirements are Single or Three phase and only 20-30 CFM @ 80 psi of clean dry air is needed.



This low cost system affordable for small job shops to get started in the fast growing industry of metallizing. We will be marketing to automotive restoration shops, hot dip galvanizing facilities, dimensional restoration machine shops antique architectural restoration and those who are currently using flame spray. The cost of using Electric Arc is a fraction of the operational costs of Flame Spray and much more productive.

Thermion is approaching it's 30 year anniversary of designing and manufacturing Thermion Metallizing Systems. Founder/CEO Frank Rogers is still active in the company working on the next generation of Arc Spray technology. Best known as a the leader in high production arc spray, Thermion is now making it's mark in high quality coatings spraying small diameter wires. Products and services also include complete system engineering, spray wires, ventilation systems and design, safety products and sandblasting products.

Thermion is now selling factory direct in the United States with active distributors in Canada, Czech Republic, Japan, New Zealand, Singapore, Taiwan, and United Arab Emirates.

For more information or if you are interested in distributing Thermion products, please visit website www.thermioninc.com or e-mail to info@thermioninc.com



Principal Scientist #2399 OSRAM SYLVANIA Towanda, PA

This R&D position involves the synthesis and characterization of various thermal spray materials. The projects will extend from applied basic research; development of next generation materials; and assisting with customer support issues. These efforts will require extensive knowledge of material processing, characterization, coating performance metrics, and thermal spray processing equipment (air-plasma, wire-arc, HVOF at a minimum). Responsibilities will include project planning, organizing, executing, coordination, interpretation and documentation of results. In addition to lab-scale research, evaluation and testing under production-scale will be necessary. This position is very cross-functional in nature and will require a strong interaction with manufacturing, marketing, analytical, and sales. At times, travel could be required as high as 20%.

BS and 6+ years; MS and 4+ years; or PhD in related discipline, with research experience in the area of thermal spray technology and coating applications. Effective writing and oral communication skills are required. Knowledge in six-sigma principles is a plus. This position requires U.S. citizenship.

Please apply on-line to www.sylvania.com.

M/F/D/V EE0/AAP

Technical Program Open To Public Next Program in Hawaii

The *International Thermal Spray Association* welcomes non-member participation at the Technical Program portion of their membership meetings. ITSA membership meetings are typically three-day events with a thermal spray technical program on Friday from 8:00 am through 5:00 pm.

The February 15, 2008 Technical Program will be held in Waikoloa, Hawaii. The cost for non-members to attend is \$400, which includes breakfast and lunch.

For more information, contact Kathy Dusa via email kathydusa@thermalspray.org

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NEW Cold Spray Book

The Cold Spray Materials Deposition Process: Fundamentals and Applications

Edited by V K Champagne, US Army Research Laboratory, USA

This publication examines the fundamentals of the cold spraying process, assesses how the technique can best be applied in practice, and describes portable and stationary cold spray systems



The cold spray process produces dense, low oxide coatings which can be used in such diverse applications as corrosion control and metals repair. It has emerged as an important alternative to thermal spray coating techniques in certain areas. This pioneering book reviews both the fundamentals of the process and how it can best be applied in practice.

The first part of the book discusses the development of the process together with its advantages and disadvantages in comparison with thermal spray coating techniques. Part 2 reviews key process parameters such as powders, nozzle design, particle temperature and velocity, and particle/substrate interaction. It also describes portable and stationary cold spray systems. The final part of the book discusses how the cold spray process can be applied in such areas as improved wear, corrosion protection, electromagnetic interference shielding and repair of damaged components.

Contributors to this book include: V. K Champagne and D. J. Helfritsch - US Army Research Laboratory, Aberdeen, MD USA; A. Papyrin, Albuquerque, NM, USA; M. F. Smith - Sandia National Laboratories, Albuquerque, NM, USA; J. Karthikeyan - ASB Industries Inc., Barberton, OH, USA; S. Celotto, J. Pattison*, J.S. Ho, A.N. Johnson and W. O'Neill - Cambridge University Engineering Department, Cambridge, UK; F.J. Brodmann, Harvey, Louisiana, USA; K. Sakaki - SHINSHU University, Nagano City, Japan; T. Van Steenkiste - Delphi Research Laboratories, Shelby Township, MI USA; M. Grujicic, P. Wilfred and H. S. Tiencken - Clemson University, Clemson, SC USA; R.Maev, V. Leshchynsky and E. Strumban - University of Windsor, Windsor, Canada; H. Höll - CGT GmbH, Germany; A.Gouldstone, W.B.Choi, W.Chi, Y. Wu and S.Sampath - State University of New York at Stony Brook, USA; T. Eden and D. Wolfe - The Pennsylvania State University, University Park, PA USA; R. C. McCune, West Bloomfield, MI USA

For more information or purchase, refer to ISBN 978 1 84569 181 3 and visit www.woodheadpublishing.com



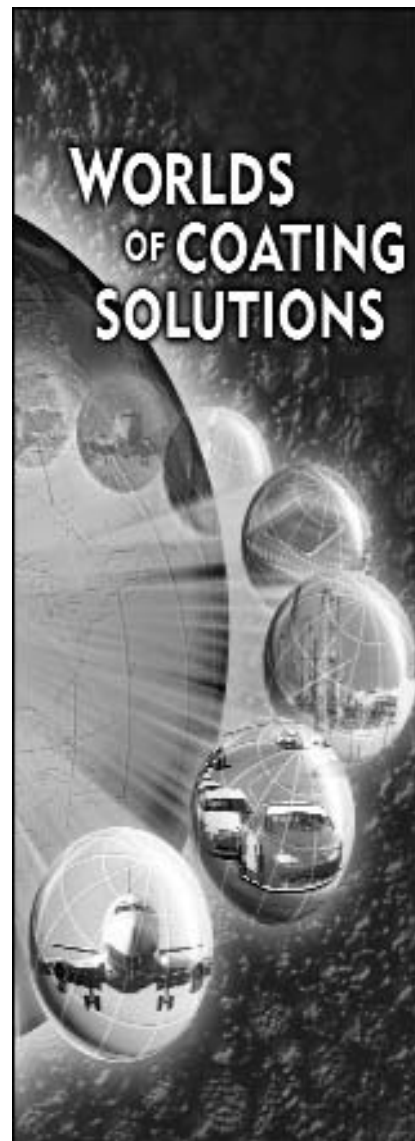
St Louis Metallizing Company, a well established thermal spray company, is looking for experienced, seasoned talent to join our team and add to our expanding business growth. We are looking for a Senior Process Engineer, experienced in developing all areas of spray processes, repair development and technical documentation.

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124 People Attend ITSA Arizona Meeting

The International Thermal Spray Association Membership Meeting held recently in Chandler, Arizona was a huge success with 124 people in attendance.



Thursday began with the hospitality suite open from 4 pm through midnight where members, speakers, and guests could check in, enjoy refreshments and hors d'oeuvres, visiting and networking with each other.

The Friday ITSA Technical Program ran from 8am through 5pm with a variety of educational presentations by guest speakers in the thermal spray industry. These valuable presentations included topics such as cold spray, chiller technology, DC plasma technology applied to the making of nanomaterials, cleaning equipment, Hexavalent awareness training, new methods for grinding and finishing thermal spray coatings, thermal spray cooling technology, "dos" and "don'ts" of shop management software and more. (note:

ITSA Technical Programs are now open to the public for a cost of \$400.00 which includes breakfast and lunch. See page 8 for more information.)

The ITSA business meeting was held Saturday morning followed by golfing, tours and an evening dinner.



The next International Thermal Spray Association membership meeting will be held February 14-16, 2008 in Hawaii.

For more information, contact Kathy Dusa at the ITSA headquarters office via email itsa@thermalspray.org

50 Year Membership Plaques Presented

St. Louis Metallizing Company and **Sulzer Metco** were recognized with 50-year membership plaques at the recent International Thermal Spray Association meeting in Chandler, Arizona. These plaques were presented by outgoing chairman Ed Simonds of Cincinnati Thermal Spray.

The first 50-year membership plaque was presented last year to the **F. W. Gartner Thermal Spraying Company**.

The recognition reads *A Founding Member of the Metallizing Service Contractors with Continued Participation and support of the International Thermal Spray Association. 50 Years Membership. In Dedication to the Growth, Advancement, and Prosperity of Thermal Spray.*

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Ed Simonds, outgoing ITSA chairman 2005-2006 received plaque In Acknowledgement and Appreciation of His Dedication to the Advancement of Thermal Spray and to the Growth and Prosperity of ITSA from new Chairman, Marc Froning.

Marc James Froning New ITSA Chairman



Marc James Froning was voted the 2007-2009 International Thermal Spray Association Chairman at their recent meeting in Chandler, Arizona.

Marc joined BASF (formerly Engelhard) in 1997 as Materials Manager responsible for new coating development. In 1998, Marc attended executive management training at Rensselaer Polytechnic Institute and moved into a new role as New Product Development Manager. Marc is currently Manager of Engineering and Development at BASF Surface Technologies and oversees 13 engineers and technicians at the three BASF sites. Focusing on formulations of new coating systems/ applications and improving the reliability of existing industrial standards. Marc is also an active ambassador for BASF, participating in multiple industrial conferences.

Marc received his BS in Metallurgical Engineering from the University of Cincinnati in 1984. He continued at the UC and completed his MS studies on Thermal Barrier Coatings in 1986. From 1986 to 1990, Marc worked at GE Aircraft Engines in the Repair Processes Development Group. In 1989, Marc received GEAE's "Manufacturing Engineer Award"

and received a US patent for his work on Activated Diffusion Cladding. In 1990, Marc took the position of Engineering Manager at Plasma Technology Inc. While at Plasma Technologies, Marc worked closely with GE Aircraft engine to develop HVOF coatings systems on their most popular CFM56 engine. In 1993, Marc went to work for H.C. Starck, a Division of BAYER AG, to broaden his thermal spray experience outside the aerospace industry and gain an international prospective of the thermal spray market.

For more information, visit www.basf.com or contact Marc via email marc.froning@basf.com

For a free copy of the International Thermal Spray Association "What Is Thermal Spray?" publication, send an email request to itsa@thermal.spray


SPRAYTIME Circulation Reaches 7000

As of the second quarter 2007 issue, the SPRAYTIME thermal spray industry newsletter has reached a circulation of over 7,000 copies. This is an increase of 17% over last year.

To view the distribution quantities by zip code areas, please visit www.spraytime.org and choose the Publisher Circulation Statement.

For more information, contact the International Thermal Spray Association via email itsa@thermalspray.org

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The new Parker domnick hunter Hyperchill-TS is the perfect solution for your Thermal Spray process cooling needs. Whether Plasma Spray, HVOF or both, the Hyperchill-TS product range can take the heat! The TS version encompasses non-ferrous circuits, high-pressure stainless steel pumps, compressed air blow back and water flow regulation with visual flow indication to perfectly meet demanding thermal spray requirements. Hyperchill-TS utilizes the latest energy savings cycling technology. Many chillers claim cycling capabilities but water reservoirs are typically insufficient to provide the large thermal mass required to perform this process efficiently and effectively. Scroll refrigeration compressors and advanced PLC controls complete the cycling process. Parker domnick hunter also manufactures a full range of compressed air treatment products and nitrogen gas generators for other Thermal Spray needs.



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CALENDAR OF EVENTS OCTOBER 2007

3-4 Baltimore, MD USA *Advanced Materials & Manufacturing Technology for Naval Applications* - contact Concurrent Technologies Corp tel 800.282.4392, web: www.ctc.com

2-4 Charlotte, NC USA *South-Tec Machine Tool and Metalworking Expo* - contact SME Society of Manufacturing Engineers tel: 800.733.3976, web: www.sme.org/southtec

8-9 Akron, OH USA *Cold Spray 2007 Conference* with table top exhibits and an industrial visit to ASB Industries - contact ASM Int'l, tel: 800.336.5152 or 440/338-5151 ext. 6, web: www.asminternational.org/events, email: customerservice@asminternational.org

14-19 Seattle, WA USA *AVS 54th International Symposium & Exhibition* - contact AVS, New York tel: 212.248.0200, email: avsnyc@avs.org, web: www.avs.org

15-17 Toulouse, France *International Powder Metallurgy Congress & Exhibition (EURO PM2007)* - contact tel 44.1743.248899, email: info@epma.com, web: www.epma.com/pm2007

31 OCT - 2 NOV Kiev, Ukraine *Kiev Technical Trade Show 7th Welding Ukraine 2007, Surface Engineering 2007, Sheet Metal Working 2007, Wire Steel Ropes 2007, Cabling Wiring 2007* - contact Olga Krasko, tel.: 00.380.44.526.91 .84, email olga@welding.kiev.ua, web www.weldexpo.com.ua

NOVEMBER 2007

4-8 San Jose, CA USA *33rd Int'l Symposium for Testing &*

Failure Analysis (ISTFA2007) contact ASM Int'l, tel: 440/338-5151 ext. 6, web: www.asminternational.org, email: customerservice@asminternational.org

6-8 Genoa, Italy *Eurocoat 2007 Trade Show & Congress* - contact Eurocoat Exhibition, France tel: 33.1.41984025, web: www.eurocoat-expo.com

11-14 Chicago, IL USA *FABTECH Int'l & AWS Welding Show - with a Thermal Spray Pavilion* - organized by American Welding Society, web: www.aws.org, Fabricators & Mfrs Assoc, web: www.fmafabtech.com, Society of Manufacturing Engineers, web: sme.org/fabtech



11-13 Pittsburgh, PA USA *Commercialization of NanoMaterials 2007* - TMS Meeting Services tel: 727.776.9000, ext 243, email: mtgserv@tms.org, web: www.tms.org

12-13 Carefree, AZ USA *Intellectual Property Forum* - sponsored by ASM International tel: 440.338.5151, email customerservice@asminternational.org, web: www.asminternational.org

12-16 Las Vegas, NV USA *ASNT Fall conference & Quality Testing Show 2007* - contact tel: 614.274.6003, web: www.asnt.org

26-30 Boston, MA USA *2007 MRS Fall Meeting & Exhibition* - contact tel: 724.779.3003, email: info@mrs.org, web: www.mrs.org

DECEMBER 2007

2-7 Tokyo, Japan *Interantional Gas Turbine Congress* - email: [web: www.soc.nii.ac.jp/gtsj/igtc/IGTC07/index_e.html](mailto:web:www.soc.nii.ac.jp/gtsj/igtc/IGTC07/index_e.html), igtc@rainbow.dti.ne.jp,

11-13 New Orleans, LA USA *ASME Gas Turbine Users Symposium 2007* co-located with Power-Gen International - Contact Lisa Gasaway, tel: +1-918-832-9245, email: pgievent@pennwell.com

JANUARY 2008

21-22 Lake Buena Vista, FL USA *Engineered Surfaces for Aerospace & Defense* - contact ASM International tel: 440.338.5151, email customerservice@asminternational.org, web: www.asminternational.org

27-30 Los Angeles, CA USA *PACE 2008, The Power of Paint + Coatings* - contact www.pace2008.com

27JAN-1FEB Daytona Beach, FL USA *32nd International Cocoa Beach Conference & Expo on Advanced Ceramics & Composites* - contact Megan Mahan, tel: 614.794.5894, email: mmahan@ceramics.org, web: www.ceramics.org/acc

29-31 Mexico City, Mexico *Weldmex Show* - contact Joe Krall, email: JoeKrall@aol.com, tel: 1-800-443-9353 ext 297

FEBRUARY 2008

14 - 16 Hawaii, HI USA *International Thermal Spray Association Membership Meeting and Technical Program* - contact Kathy Dusa tel: 440.357.5400, email: kathydusa@thermalspray.org

14-16 New Delhi India - *International Trade Fair Joining, Cutting, Surfacing* - contact christina.kleinpass@messe-essen.de, tel: +49(0)201.7244.227, www.messe-essen.de

20-21 Tel Aviv and Haifa, Israel *48th Israel Annual Conference on Aerospace Sciences* - contact Dan Knassim, tel: 972.3.6133340, ext 207, web: www.aeroconf.org.il

MARCH 2008

9-13 New Orleans, LA USA *137th TMS Annual Meeting &*

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Exhibition TMS 2008 - contact TMS tel: 724.776.9000, ext. 243, email mtgserv@tms.org, web: www.tms.org
16-20 New Orleans, LA USA NACE Corrosion 2008 Conference & Expo - visit www.nace.org
24-28 San Francisco, CA USA 2008 MRS Spring Meeting & Exhibit - contact tel: 724.779.3003, email: info@mrs.org, web: www.mrs.org

APRIL 2008

14-17 Detroit, MI USA SAE World Congress and Expo - visit www.sae.org

MAY 2008

26-28 Buenos Aires, Argentina International Conference on New Developments in Metallurgy & Applications of High Strength Steels - visit www.steelconfbas08.com

JUNE 2008

1-5 Algiers, Algeria Failure Analysis of Engineering Materials and Structures - African InterQuadrennial ICF Conference of Fracture (AIQ-ICF) - contact Mimoun Elboujdaini, AIQ-ICF2008, email: melboujd@NRCan.gc.ca
1-5 Wiesbaden, Germany 2nd Int'l conference on Steels in Cars & Trucks - contact Markus Bau tel: +49.241.88970-57, email: bau@sct2008.de, web: www.sct2008.com

2-8 Pine Mountain, GA USA 8th Int'l Conference on Trends in Welding Research - contact contact ASM Int'l tel: 440.338.5151, web: www.asminternational.org, email: customerservice@asminternational.org

2-4 Maastricht, the Netherlands International Thermal Spray Conference/Expo (ITSC 2008) - visit web www.dvs-ev.de/itsc2008 or contact ASM Int'l tel: 440.338.5151, email: customerservice@asminternational.org, web: www.asminternational.org

8-12 Washington, DC USA World Congress on Powder Metallurgy & Particulate Materials - email: info@mpif.org, web www.mpif.org
9-12 Chongqing, China MRS International Materials Research Conference - contact tel: 724.779.3003, web: www.mrs.org

9-13 Berlin, Germany ASME Turbo Expo 2008 - visit www.turboexpo.org

AUGUST 2008
18-21 Louisville, KY USA - MegaRust 2008 Marine Coatings & Corrosion Conference - visit www.nstcenter.com

SEPTEMBER 2008
14-18 Champion, PA USA 11th International Symposium on Superalloys (Superalloys 2008) - contact TMS tel: 724.776.9000 x 243, email: mtgserv@tms.org, web: www.tms.org

OCTOBER 2008
2-8 Las Vegas, NV USA FABTECH Int'l & AWS Welding Show - with a Thermal Spray Pavilion - organized by American Welding Society, web: www.aws.org, Fabricators and Mfgs Assoc, web: www.fmafabtech.com, Society of Manufacturing Engineers, web: sme.org/fabtech
6-9 Pittsburgh, PA USA Materials Science & Technology 2008 Conference & Exhibition (MS&T'08) - organized by ASM, ACerS, AIST, and TMS tel: 440.338.5151 ext.0 email: customerservice@asminternational.org, web: www.asminternational.org

DECEMBER 2008

1-5 Boston, MA USA 2008 MRS Fall Meeting & Exhibit - contact MRS tel: 724.779.3003, email: info@mrs.org, web: www.mrs.org

JULY 2009

12-17 Ottawa, Ontario Canada 12th Int'l Conference on Fracture (ICF12) - visit www.icf12.com

SEPTEMBER 2009

14-19 Essen, Germany International Trade Fair - Joining, Cutting, and Surfacing - visit web: www.messe-essen.de, contact email: christina.kleinpass@messe-essen.de

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For general information, contact Farr Air Pollution Control at tel: 800.479.6801; fax 800.222.6891; email filterman@farrapc.com; web: www.farrapc.com

Ardleigh Minerals Recognizes Saint-Gobain Ceramics

Ardleigh Minerals, Inc. presented recognition plaques to Saint-Gobain Ceramics Igniter Products to honor the company's "green" efforts of recycling various, diverse materials through Ardleigh Minerals.



(L to R) Guy Morin, Rich Hillman, Ernie Petrey

On August 23, 2007, Ernie Petrey visited Saint-Gobain Ceramics Igniter Products' Milford, NH facility and presented Guy R. Morin, Operations Manager, and Richard F. Hillman Jr., Safety and Environmental Specialist, with plaques to acknowledge the manufacturer's recycling of byproduct materials in 2005, 2006 and 2007.

The plaques were presented to recognize one of Ardleigh Mineral's valued customers, as well as to encourage other companies to think about recycling more of their byproduct materials. Petrey explains, "By working together with St. Gobain, each year we have been able to identify additional types of material used in their processes that can be recycled. We now recycle a wide variety of materials that previously went to the landfill."

Ardleigh Minerals is a recycler and supplier of raw materials for the metallurgical, ceramic, cement and agriculture industries. "We actively search for a broad assortment of materials that can be recycled or utilized as raw materials in their entirety. We found our niche by providing one-stop-recycling services for producers of by-product, off specification and obsolete materials," says Petrey. "Our hope is that companies will follow the great example of manufacturers such as Saint-Gobain Ceramics Igniter Products and consider a service such as ours, rather than sending these types of materials to landfills," he added.

For more information, visit www.ardleigh.net

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Ron Matilda Joins Alloy Sales

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With increasing aerospace maintenance demands, Ron's knowledge will be an asset to our customers and a welcome addition to our sales staff.

Ron is a certified aviation welding technician and a member of CAMC (Canadian Aviation Maintenance Council).

For more information, contact Ron email: ron@alloysales.com, tel: 604/940-9930 800/652-5569 or visit www.alloysales.com

ZAPP

Tom Sigler Joins Zapp Precision Wire

Tom Sigler, former Vice President and General Manager of Branford Wire, has joined forces with the ZAPP Precision Wire group in Summerville, South Carolina as their New Product Development/Product Manager. The Zapp Group, based in Germany, has a rich history dating back over 300 years. ZAPP Precision Wire, part of the ZAPP-Group, which includes Stahlwerk Ergste Westig GmbH, specializes in the manufacture and sale of wire, bar, profile, precision sheet and strip made of stainless steel, carbon steel, titanium, nickel and their alloys as well as other specialty metals. Major markets include aerospace, power generation, medical, automotive, and oil and gas.

For more information, contact Tom Sigler, ZAPP Precision Wire, 475 International Circle, Summerville, SC 29483, tel: 843-851-0700 x108, toll free: 888-777-3962, web: www.zapp.com, email: tsigler@zapp.com. For European sales, contact Mr. Christoph Janssen, email: christoph.janssen@zapp.com

New Staff At Universal Thermal Services



Al Sohl has joined Universal Thermal Services as a Field Service Technician. After 20 years with Sulzer Metco, Al brings a wealth of calibration and technical experience in qualifications to Universal.

Kim Karski has joined Universal Thermal as of June this year in the office to assist with orders and keeping the



mounds of paper under control.

Universal Thermal Service Inc., founded in 1999 is made up of field service technicians from different past reputable companies; Founder, Allen Hildebrand - President (formally field service manager of Miller Thermal), Armand Roy - Quality Manager (formally field service manager of Tafa), Nicholas Albert - Field Service Technician (Fox Valley Technical College with an Electrical Mechanical Degree), and now Al Sohl (formally Field Service Supervisor Sulzer Metco).

For more information, contact Allen Hildebrand, Universal Thermal Services, Inc., E7064 Knopp Rd., Manawa, WI 54949, tel: 920.596.2983, email: uts@wolfnet.net

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Chairman Froning

The **International Thermal Spray Association** is closely interwoven with the history of thermal spray development in this hemisphere. Founded in 1948, and once known as Metallizing

Service Contractors, the association has been closely tied to most major advances in thermal spray technology, equipment and materials, industry events, education, standards and market development.

A company-member trade association, ITSA invites all interested companies to talk with our officers, committee chairs, and company representatives to better understand member benefits. A complete list of ITSA member companies and their representatives are at www.thermalspray.org

ITSA Mission Statement

The International Thermal Spray Association is a professional trade organization dedicated to expanding the use of thermal spray technologies for the benefit of industry and society.

Officers

Chairman: **Marc Froning**, BASF Catalysts LLC
 Vice-Chairman: **Dan Hayden**, Hayden Corporation
 Treasurer: **Bill Mosier**, Polymet Corporation
Executive Committee (above officers plus)
 Corporate Secretary: **Kathy Dusa**
 Past Chairman: **Ed Simonds**, Cincinnati Thermal Spray, Inc.
 6-Year Term: **John Read**, National Coating Technologies
 4-Year Term: **Scott R. Goodspeed**, H. C. Starck, Inc.
 2-Year Term: **John Hayden**, Hayden Corporation

ITSA Scholarship Opportunities

The International Thermal Spray Association offers annual Graduate and Undergraduate Scholarships. Since 1992, the ITSA scholarship program has contributed to the growth of the thermal spray community, especially in the development of new technologists and engineers. ITSA is very proud of this education partnership and encourages all eligible participants to apply. Please visit www.thermalspray.org for criteria information and a printable application form.

ITSA Materials Camp Student Sponsor

Commencing in 2001, the International Thermal Spray Association provides an annual \$1,500 student scholarship to the ASM International Foundation Materials Camp.

ITSA Thermal Spray Historical Collection

In April 2000, the International Thermal Spray Association announced the establishment of a Thermal Spray Historical Collection which is now on display at their headquarters office in Fairport Harbor, Ohio USA.

Growing in size and value, there are now over 30 different spray guns and miscellaneous equipment, a variety of spray gun manuals, hundreds of photographs, and several thermal spray publications and reference books.

Future plans include a virtual tour of the collection on the ITSA website for the entire global community to visit.

This is a worldwide industry collection and we welcome donations from the entire thermal spray community.

ITSA SPRAYTIME Newsletter

Since 1992, the International Thermal Spray Association has been publishing the **SPRAYTIME** newsletter for the thermal spray industry. The mission is to be the flagship thermal spray industry newsletter providing company, event, people, product, research, and membership news of interest to industrial leaders, engineers, researchers, scholars, policy-makers, and the public thermal spray community.

For a free **SPRAYTIME** subscription, visit www.spraytime.org and complete the short questionnaire.

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NEW

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SPRAYTIME solicits letters to the Editor for publication in our new column. Letters are solicited that comment on a recent SPRAYTIME article, on a topic of general interest to the thermal spray industry, on a recent event in the industry, or on a recently published letter to the editor.

Send your letter to SPRAYTIME by e-mail to spraytime@thermalspray.org or via fax to 440.357.5430; electronic submissions as a Word document are preferred. Letters must be signed and must give the author's name, affiliation, and phone or e-mail address. The author's name will be published. Letters of fewer than 300 words will be given preference. Longer letters may be abridged by the editor. Please give the headline and issue number if referring to a specific article previously published.

The editor reserves the right to select letters for publication, and due to space and time limitations not all letters will be published nor acknowledged. If you have any questions please contact SPRAYTIME via email spraytime@thermalspray.org, or via phone 440.357.5400.

Broken Arrow Facility Announces Staff Changes



Sherry Laboratories, an independent provider of third-party testing services, is pleased to announce that **Jeff Simmons** and **Sharon Bledsoe** have accepted new positions at the company's Broken Arrow facility. Simmons has been selected as the Metallurgical Laboratory Director, while Bledsoe has been chosen to the newly formed position of Director of Technical and Customer Services.



Simmons joined the Sherry staff in August of 2005 as Manager of Mechanical Testing. His duties included managing the department's resources in a manner that promoted customer satisfaction, process efficiency, and employee satisfaction. He also oversaw the mechanical testing, machine shop and log-in departments to assure that turn-time expectations were met or exceeded while maintaining quality and specification requirements.

Prior to joining the Sherry staff, he was employed at SGS U.S. Testing Company, Inc., in Tulsa, Okla. He started his career as a Test Engineer, designing and conducting tests utilizing nondestructive and destructive methods to conform to ASTM, ANSI, ASME, UL and ASSE standards.

Bledsoe, as Metallurgical Laboratory Director, played a vital and extremely instrumental role in the facility recently earning prestigious accreditation through the National Aerospace and Defense Contractors Accreditation Program (Nadcap). Prior to her most recent position, she launched, developed and perfected the position of Customer Service/Technical Support. Her efforts in facilitating tests through the lab, responding to clients' technical questions, creating a work-flow system for the log-in department, and performing technical/quality review of testing work orders increased Sherry's efficiency and resulted in improved customer relations. She began her Sherry career in 1983 as Supervisor of the Metal Chemistry Department.



Sherry Laboratories, which was established in 1947, provides a complete array of reliable, high-quality analytical testing services. The network features seven labs in three states -- Indiana, Louisiana and Oklahoma. The facilities are organized to provide a single source for independent environmental, bioassay, metallurgical, nonmetallic, polymer, microbiological, and petroleum related testing services that satisfy customers' precise specifications while meeting their scheduling requirements.

For more information, contact Bob Moore, Marketing Coordinator, email: bobm@sherrylabs.com, tel: 765.378.4119, web: www.sherrylabs.com



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Errol Cadet Joins Wall Colmonoy

Wall Colmonoy Corporation (WCC) Madison Heights, MI announces that **Errol Cadet** has accepted the position of Manager of Production for their Aerobrazing Division in Cincinnati. Errol began his formal education in Trinidad and Tobago and went on to attend Rockland Community college in New York.



Errol is new to the WCC organization, but brings with him over twenty years of shop-floor experience in the aerospace industry. He will be responsible for overseeing the processing of a wide range of turbine components.

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Philips Receives MPIF Award

The Metal Powder Industries Federation (MPIF) presented Air Products' **Thomas Philips** with a "Distinguished Service to Powder Metallurgy Award" at the recent PowderMet International Conference in Denver, Colorado. This award recognizes Tom's 25 years of service to the Powder Metal Industry as nominated by his peers and contemporaries.



Tom is a Lead Industry Engineer within Air Products' Commercial Technology organization. Based in Ann Arbor MI, he supports the metals processing segment within a portion of the mid-western U.S. as well as international support for Asia, Latin America and South Africa.

Tom is a member of the Industry Development Board for the Metal Powder Industries Federation, and chaired the committee for the revision of the Powder Metal Design Manual. He is a frequent invited speaker at MPIF and ASM International seminars on sintering and atmosphere

technologies and has presented technical papers at numerous national and international conferences.

For more information, visit www.airproducts.com or www.mpif.org

ASM International 2007 Fellow

ASM International, in 1969, established the honor of Fellow of the Society, to provide recognition of members for distinguished contributions in the field of materials science and engineering, and to develop a broadly based forum for technical and professional leaders to serve as advisors to the Society.

Dr. J. Karthikeyan Ph.D., Director of Research and Development, ASB Industries, Inc., Barberton, Ohio.

Dr. Karthikeyan received his Ph.D. from Bombay University and specialized on thermal spraying and advanced material processing technology. Since 1972, he pursued research in the Atomic Energy Commission, India, Kernforschungsanlage, Germany, Monash University, Australia and SUNY at Stony Brook. He is involved in industrial R&D since 1997, developing advanced coating techniques and engineered coatings. He has authored in excess of 100 publications, mostly in peer reviewed journals. Last six years, he is leading industrial cold spray R&D and has published over 30 papers in various aspects of cold spray technology. He has authored many patents in cold spray technology and applications. He has organized the ASM sponsored "Cold Spray 2004" meeting in Akron, during Sept 2004, and also has arranged special sessions on Cold Spray at various International Thermal Spray Conferences.



For more information, visit www.asbindustries.com

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Kendall Hollis New Associate Editor For *Journal Of Thermal Spray Technology*



The ASM Thermal Spray Society Journal of Thermal Spray Technology, a peer-reviewed thermal spray publication, has appointed **Kendall J. Hollis** as their new Associate Editor.

Kendall received his BS from the University of Illinois in Nuclear Engineering in 1990. He then did graduate study in plasma physics/material processing at the University of Wisconsin-Madison and performed graduate research at Sandia National Laboratories-Albuquerque, New Mexico with Mark Smith and Richard Neiser, finishing his PhD in 1995. He did a short post-doc at Sandia then came to Los Alamos National Laboratory in July of 1995 as a post-doc. Kendall became a staff member at LANL in the Materials Science and Technology group in 1996 and has worked since then on the Powder Metallurgy team and the Beryllium team. His areas of research at LANL have included arc physics, cathodic cleaning, powder atomization, powder consolidation, fusion energy high heat flux components, inert ceramics for reactive molten metal processing, thermal spray (plasma, wire arc, flame), deposition welding, electro-spark deposition, laser and thermal emission diagnostics and process control.

For more information, contact Kendall Hollis via email kjhollis@lanl.gov

Rob Hostinak Joins Air Products and



Chemicals, Inc. as West Coast Applications Engineer

Graduated from Texas A&M, with an engineering degree, **Rob Hostinak** brings nearly 15 years of thermal spray expertise with a specialty in aerospace applications. "I had the opportunity to be at the preview and launch of United Airlines first Boeing 777," Rob recalls, continuing "And I knew I had chosen the right career direction. The magnitude and complexity of the aircraft enthralled me."



Rob brings this passion to his new position, where his experience in both thermal spray equipment,

and the applications of those technologies, enables him to understand all sides of the process. Based in Washington State, Rob travels extensively on the West Coast serving the metals industry including, of course, the one that captivated him many years ago -- aerospace.

"I enjoy being involved in the process and working with customers to implement technology and overcome challenges," Rob states.

For more information, contact Air Products and Chemicals, Inc. tel 800.654.4567; email gigmrktg@airproducts.com; web www.airproducts.com/metals.

Praxair Surface Technologies Names Rick Johnson General Manager

Praxair Surface Technologies, a subsidiary of Praxair, Inc. (NYSE:PX), has appointed **Rick Johnson** general manager, for TAFE Incorporated, Praxair Surface Technologies' thermal spray equipment and consumables business, located in Concord, N.H.

Johnson joined Praxair in 2005 as plant manager for the Indianapolis powder plant and recently served as plant manager for the Electron Beam Physical Vapor Deposition operations, which serves the aviation industry. He brings with him over 20 years of experience in the manufacturing sector with previous positions in engineering, management and procurement. Johnson holds a Bachelors Degree in Mechanical Engineering from Georgia Institute of Technology.

Praxair, Inc. parent company of Praxair Surface Technologies, Inc., is the largest industrial gases company in North and South America, and one of the largest worldwide, with 2006 sales of \$8.3 billion. The company produces, sells and distributes atmospheric, process and specialty gases, and high-performance surface coatings.

For more information, visit www.Praxair.com or www.Praxair.com/thermalspray



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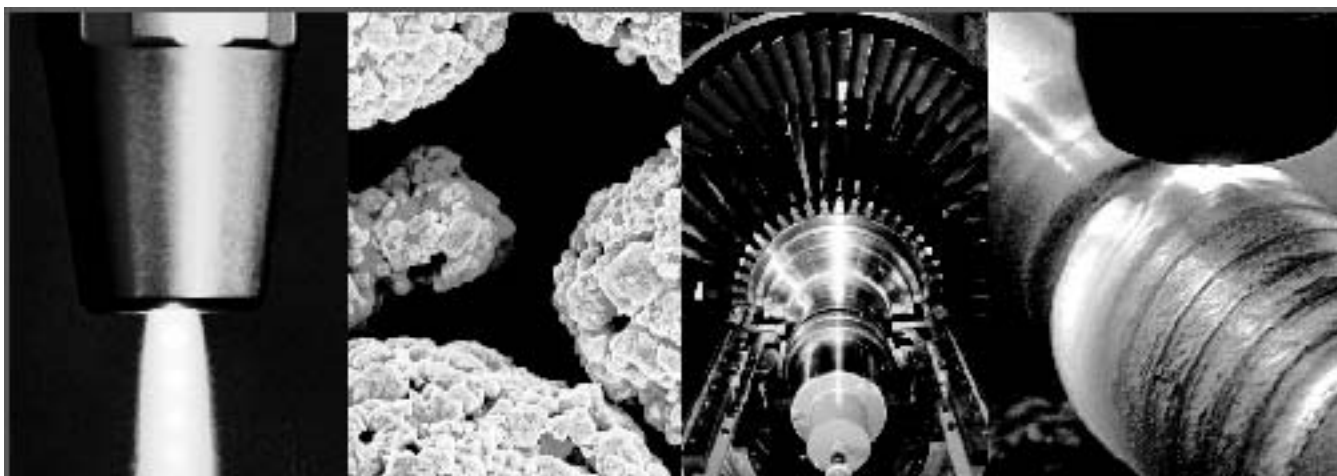
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A successful team (left to right): production manager Georg Philipsen, Hubert Ptok, Manfred Hochkeppel, Alois Schattka and Manuel German .

Quality Certification

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Terolab Surface GmbH (TLS) sets high value on quality and on the training of their staff. Consequently, the company and workforce get regularly inspected by the Thermal Spraying Association of Germany (GTS).

In order to fulfill the high quality needs of their customers, TLS submit themselves regularly to be examined by independent trade boards. Hence their Langenfeld location has received the GTS certificate for three more years last November. As an appendix to such well-known quality management systems such as DIN, EN, ISO 9000, GTS has been developing special quality standards for thermal spraying, which also implies people, processes and products. The top priority is to maintain constant layer quality.

Against the backdrop of a pronounced lack of skilled workers and the fact that the special technique of thermal spraying cannot be acquired as part of any acknowledged professional formation, it is of utter priority to TLS to qualify our workforce ourselves and have them certified by an independent organization like GTS. The great number of newly qualified personnel testifies the success of these measures. Thanks to their convincing achievements, Messrs. Manual German, Hubert Ptok, Jörg Sandig and Alois Schattka have successfully passed their exam as thermal sprayers, and team leader Manfred Hockkeppel has proved his qualifications as spraying supervisor.

For more information, contact Ellen Gall, tel: +49.0.21.73.799.164, email: e.gall@terolabsurface.com, web: www.terolabsurface.com

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