

#### Frank Hermanek and Elliott Sampson In ASM Thermal Spray Hall of Fame

Two leaders and innovators who have shaped the past, present, and future of thermal spray technology have been inducted into the Thermal Spray Hall of Fame in May during the ITSC 2912 Plenary Session in Houston, Texas USA.



Frank J. Hermanek For substantial contributions in thermal spray coatings, materials, and technology developments, and for acting as a mentor and teacher to new upcoming members to the thermal spray industry.

*Mr. Frank J. Hermanek*, is a consultant and owner of FJH and

Associates, Lawrenceburg, IN. He received his BS degree from Manhattan College, Riverdale, NY in 1961, and did graduate studies in metallurgy at Polytecnic Institute, Brooklyn from 1961-65. He started his career in 1962 as a metallurgical engineer with Metco, Inc., Westbury, NY. He joined Grumman Aerospace Corp., Bethpage, NY, in 1963. In 1969, he joined General Electric Aircraft Engine Group, Cincinnati, OH, as manager, metallic and non-metallic thermal spray coatings; became manager, vacuum plasma spray technology in 1975; and became manager, coatings application development, in 1978. During his time at GE, he developed plasma spray tungsten-carbide coatings. He joined Alloy Metals Inc., Troy, MI, in 1980 as manager, technical services. In 1986, he joined Praxair Thermal Spray Products, Indianapolis, IN, where he held several positions, retiring in 2000 as manager, application engineering.

Frank has a long career in thermal spray and surface engineering, authoring many papers and receiving four

patents. He was deeply involved in the development of the ASM Thermal Spray Division, and the development of the TSS Hall of Fame. He had a key role in creating the original thermal spray handbook. He served on various TSS Committees, and received the TSS President's Award (1990 and 2000), and was named ASM Fellow in 2006. He is an ASM Life Member.

As a lifetime International Thermal Spray Association (ITSA) member, Frank remains the Historian and Curator for the ITSA Thermal Spray Historical Collection.



Elliott R. Sampson For significant contributions to the development of twin wire-arc spray technology and for providing leadership in promoting thermal spray technology to aerospace markets and in thermal spray education.

Mr. Elliott R. Sampson passed

away January 6, 2011 following an extended illness. Elliott was born in Cooperstown, NY. He received his BS degree in forestry from the University of Maine, and did graduate studies in metallurgy at New Haven College and University of Connecticut, and received his MA degree in business management from New Hampshire College. Prior to joining TAFA Inc. in 1991 as regional sales manager, he worked at Klock Corp. (CT), Turbine Components Corp. (CN), Sampson Alloys (NY), Guyson Corp. (NY), and Sulzer Metco (NY). He became arc spray product manager at TAFA in 1992, and was senior marketing manager from 2000-2004. He was a

**Continued Page 4** 



#### **SPRAYTIME**

Published by International Thermal Spray Association A Standing Committee of the American Welding Society

*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.

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#### 4th Thermal Spray Conference at Fabtech Tuesday, November 13

Mark your calendar now for travel to Las Vegas for the fourth annual one-day Thermal Spray Conference.



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lifelong contributor to the development and growth of thermal spray technology. He was instrumental in developing and marketing twin wire-arc spray applications throughout the world including coatings for aircraft engines. He was a leader in mentoring and teaching within thermal spray industry. He authored and coauthored many papers on thermal spray technology. He was a member of ASM and the Thermal Spray Society for 23 years. He served on several ASM/TSS committees, as well as the AWS C2 Committee. He received the ASM President's Award in 2001.

Elliott was a long-time member with the International

Thermal spray Association and authored papers for their SPRAYTIME<sup>®</sup> newsletter.

The Hall of Fame was established in 1993 by the ASM Thermal Spray Society to recognize and honor outstanding leaders who have made significant contributions to the science, technology, practice, education, management and advancement of thermal Spraying. "The Hall of Fame is a bond between our industry's past and its future," said ASM Thermal Spray Society President Charles M. Kay, ASB Industries.

*For more information on the ASM TSS Hall of Fame*, visit www.asminternational.org/tss



#### Thermal Spray Pavilion

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Thermal Spray Pavilion this year in Las Vegas, NV November 12-14, 2012.



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#### Thermal Spray Technology

**Highlighted At Fabtech Show** Las Vegas Convention Center November 12-14, 2012

Thermal Spray Basics: Putting Coatings To Work Free Tutorial • 1:00 - 5:00 PM Monday, November 12, 2012 • Registration Code: W30

#### Thermal Spray Technologies: High Performance Surfaces Conference

17 Speaker Presentations • 9:00 AM - 5:00 PM Tuesday, November 13, 2012 • Registration Code: W29

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#### Make plans now to attend Fabtech 2012 in Las Vegas November 12-14, 2012. Following are the Thermal Spray Conference Abstracts for review. Design Considerations for Thermal Spray Coatings

KEYNOTE SPEAKER: Raymond J. Sinatra, Rolls Royce Corporation, Indianapolis, IN Thermal Spraying is certainly a specialized process, but the end result (coating) has played a significant role in everyday industrial and commercial products around the globe. Coatings are used to change surface properties, improve product performance, extend service life and reclaim worn components back into service. A successful business model today must develop, test and bring to market a new product on a precise time line leaving little room for poor performance or re-engineering activity. This presentation will review some of the common design considerations needed for selecting a thermal spray coating and provide some typical examples of success and failure in the design process.

#### Cost Implications of Cascaded High Efficiency Plasma Spray Processes Omar Sabouni, Sulzer Metco, Westbury, NY

Plasma spray coating costs are highly dependent on the rate of material deposition. As a consequence the power of plasma spray systems introduced into the market has consistently increased with time as a means of increasing deposition rates. Cascaded plasma spray technology has more recently shown the ability to increase deposition rates through increases in efficiency. Examples will show that by using material more efficiently and consuming less energy and other utilities, the cost of coating application can be significantly reduced.

#### Experimental Investigation of Ultra-Smooth Hardface Coatings Applied by Advanced HVOF Process

Xinging Ma, Curtiss-Wright Surface Technologies, East Windsor, CT

Many industrial applications, such as landing gear, compressor blades, valves and gates, require the surface properties of high hardness, superior finishing and strong adhesion to provide satisfactory wear and erosion resistance and mechanical integrity. In this work, an improved HVOF process is developed and investigated for applying hardface coatings with near-net-shape and ultra smooth as-sprayed surface compared to those fabricated by a conventional HVOF process. This would provide a significant step forward in streamlining the manufacturing process and potentially cost.

#### Noise Abatement and Safety for HVAF and Cold Spray

Scott McLaughlin, McLaughlin & Associates Thermal Spray, Inc., Naperville, IL

Cold Spray, HVAF and Other High Noise Level Technologies Require New Approaches to Sound Abatement Safety. With the introduction of new technologies to thermal spray such as cold spray and High Velocity Air Fuel (HVAF), advanced noise abatement equipment and new techniques for sound control are necessary to protect Continued on page 6.





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#### Continued from page 5.

worker safety. Both of these processes produce high levels of high frequency noise. High frequency noise presents unique challenges from a sound containment perspective. A basic technical discussion of sound wave profiles and how they relate to thermal spray will be included. New technologies for spray booth design which have been developed for cold spray and HVAF in order to keep noise levels at or below 85 dBAwill be detailed. Special consideration must be given to wall panels, doors, windows and other opening such as overhead roof hatch access for cranes. The paper will also review basic noise safety considerations and noise abatement techniques for established processes including HVOF, plasma arc spray, electric wire arc and D-Gun™.

#### New Safety Control Methods to Meet the Global Needs of a Modern Thermal Spray Industry

#### Alex Thornton, Hardface Alloys, Inc., Placentia, CA

Each day an industry grows, its safety considerations become more and more prevalent. In thermal spray, we have the unique opportunity to be able to include factors from discrete points of concern in an easily defined safety protocol. This paper outlines the ways in which the modern development of robotic control systems provides an ideal platform to support a singlepoint, elegant logic process of managing a safety matrix practically unlimited in size. A thorough, well-established foundation using up-to-date technology is the only way to ensure that safety remains the number one priority.

#### Quality Thermal Spray

Jory Wright, Accuwright Industries, Gilbert, AZ

Thermal spray as a whole is one operation, but a closer look reveals more than one step to insuring a quality outcome. This presentation will show how AWI has evolved as we understand and focus in on the quality that each step provides to the end product. As in all repair processes there are many variables that can contribute to the end product. How we control and minimize mistakes with these variables is what makes our company a leader in the industry.

#### Performance Comparison of Standard and Modified NiCrMo Alloy C HVOF Coatings, and Their Use as Alloy Matrix for Tungsten Carbide Composites

#### Robert A. Miller, Kennametal Stellite, Goshen, IN

NiCrMo alloys are commonly used for their exceptional resistance to highly corrosive service environments in the paper processing, chemical, petrochemical, and other industries. Corrosion there can be a significant, costly and time-consuming maintenance problem. Here, HVOF coatings of a modified Alloy C are compared with those of conventional Alloy C. The modified alloy exhibits significantly improved corrosion resistance and grind finishability over the conventional alloy. The addition of carbides, such as tungsten carbide, to improve wear performance is also discussed. Current and potential applications are also presented.

#### Thermal Spray and the Starving Artist

#### Dale Moody, Plasma Powders and Systems, Marlboro, NJ

Many artists and art restorers have developed or restored works that benefit from the unique properties provided by Thermal Spray operations. The Thermal Spray system of the artist may differ significantly from the system of a standard job-shop. For example, artists are usually not concerned with high production rates, automation and specialty coatings such as thermal barrier coatings and tungsten-carbide coatings. On the other hand, artists and art restorers are interested in systems that can lay down a fine, precise coating with good accuracy, one that is versatile, able to handle a variety of materials, and, as indicated by the title, one that fits within the budget of a starving artist. This paper presents a review of Thermal Spray in the world of art, discusses the various ways that Thermal Spray is being used for art and covers the requirements for a system specifically configured for the artist and the art restorer.

#### Make or Buy, Determining the Total Costs of Operating a Thermal Spray Facility

Daniel C. Hayden, Hayden Corporation, West Springfield, MA

Whether they feel deliveries aren't fast enough, or the price for the product seems unnecessarily high, many regular consumers of thermal sprayed coatings consider the option of developing their own captive thermal spray capacity. Some even go so far as to get quotations for a gun or two and are encouraged enough to pursue the issue further. Very few, however, complete the project and take the process in-house. This presentation will discuss the fundamental requirements for a basic commercial thermal spray facility and the costs involved, in order to establish a realistic hurdle an OEM might need to meet in order to justify bringing thermal spray coating operations under their roof.

#### Thermal Spray Methods and Equipment – 1800s Through the 1930s

James Weber, Sulzer Chemtech USA, Houston, TX

Many people, when first learning about the thermal spray method, are often quite shocked when they are told that this method of applying coatings has been in use for over 100 years. While we in the thermal spray industry tend to focus on the latest thermal spray equipment technology, it is quite interesting to look back at the discoveries and application methods of the past. It is fascinating to see how far we have come and yet how close we still are to the roots and origins of thermal spray. This informative paper will discuss these early methods and compare them to some of their modern counterparts. Along with this paper there will be some actual examples of antique thermal spray equipment displayed.

#### Modeling of a Controller for a Thermal Spraying System

Igor Gorlach, Nelson Mandela Metropolitan University, Port Elizabeth, South Africa

There are a number of thermal spraying systems, which are based on High Velocity Air Flame (HVAF) processes. Stable control of HVAF systems is difficult to achieve due to the complexity of the combustion process in a small burner and because of a number of varying process parameters. Therefore, modeling of a control of HVAF systems can provide useful information in optimizing the performance of a thermal spraving system. In this research, a basic model of a HVAF controller has been developed using Matlab/Simulink. The control model consists of sub-models of various stages and units of the control system, such as: air and fuel supply models, combustion model, burner and nozzle models. The developed model was applied and evaluated using a thermal spraying controller, which was developed previously. The obtained results indicate that the developed simplified model of HVAF controller provides the main required control parameter, the fuel-air ratio, which corresponds with the value used in the actual control of the thermal spraying system.

#### **Robotic Laser Cladding**

Thomas Peters, Sulzer Metco AG, Wohlen, Switzerland

A laser cladding system concept with similarities to thermal spray equipment solutions will be presented, combining a high-power laser, powder feeding equipment and a robot handling with a dedicated laser cladding system controller in a laser-safe housing.

#### Thermal Spray Lubricious Coatings

Satish Dixit, Plasma Technology, Torrance, CA

During the extreme conditions experienced in automotives and aerospace applications, oil-based lubricants break down at high temperatures. Under such conditions, conventional fluid lubricants either fail early or never are considered as an option. As a result, components of engines that are run at high temperatures to improve their fuel efficiency tend to wear rapidly and require replacement. One solution to extend bearing life is with the implementation of a low friction, high temperature stable, and low wear coatings to the component surface that can perform under extreme conditions. Solid lubricant coatings offer a solution for diverse applications exhibiting extreme and difficult running conditions. Although the most common dry-solid lubricants are graphite, MoS2, WS2, TaS2, and PTFE, they are limited in terms of their high temperature capabilities as well as their wear characteristics. Hence in this paper we propose novel thermal spray lubricious hard coatings. Different combinations of the plasma and HVOF sprayed Chrome carbide and lubricant materials are chosen and their composition, microstructure and high temperature wear characteristics are presented.

#### Corrosion and Protection Offered by a Dispersed Oxide Coating System

David J. Urevich, ArcMelt Company, Bridgeton, MO

It has been well documented that the use of municipal waste as fuel to produce steam in Waste-to-Energy (WTE) boilers causes severe corrosion on the internal surfaces in these environments. The current remedy for such corrosion problems has been the use of weld overlays containing Nickel and the oxide forming elements such as Aluminum and Chromium. Although in the past, weld overlays have proven beneficial in halting such corrosion, it now appears that the current operating conditions coupled with unique maintenance practices have placed exceedingly difficult demands on the weld overlay's ability to mitigate corrosion. This paper, in cooperation with an industry leading producer of electricity using municipal waste as their primary fuel, will detail a two year corrosion study performed at a WTE facility known for its excessive corrosion problems. This study will present the operating conditions, maintenance practices, and the coating application technology used. The results of this study has provided us with insights on the many different scenarios that are capable of causing corrosion and the protection that is offered by a Dispersed Oxide coating system.

Continued on page 8.

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PF25	.06		1.5	BAL	1.5	3.5				20-30	1975
PF35	.05	10.5	2.0	BAL	2.0	3.3				32-40	1925
PF40	.30	7.5	1.5	BAL	1.4	4.0				40-48	1925
PF50	.65	14.0	4.2	BAL	2.8	3.8				48-54	1900
PF60	.90	16.5	4.5	BAL	3.3	4.3				56-62	1900
AM58	.90	16.5	4.5	BAL	3.3	4.3				56-62	1900
316L	.03	17.0	BAL	12.0		0.8		2.5		Rb78	2525
80/20		20.0		80.0							
PCN38			0.4	38.0			61.5			Rb60	2400
*PHAC	.05	15.5	8.0	BAL		0.8		16.0			
*PI600	.02	14.0	10.0	BAL		1.0				Rb74	2600
*PM400	.02			66.5		0.5	32.5				

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#### A New Arc Spray Amorphous Alloy for Wear Applications

Bob Unger, Polymet Corporation, Cincinnati, OH

Cored wire technology for thermal spraying allows the use of unique alloys that are not available in solid wire form. This paper discusses new developments in cored wires for thermal spraying including amorphous, nano and self fluxing alloys. A discussion of successful applications for these alloys is included.

#### Capability of Combined Thermal Spray and Laser Coating Centers to Improve Production Efficiency

Alan Burgess, SprayWerx Technologies, North Vancouver, British Columbia

Novel coating centers permit control of both thermal spray and laser based surface treatment processes. Laser cladding production rates and efficiencies can be improved with the incorporation of substrate and feed stock material preheating techniques. The benefit of these techniques to the basic laser cladding process are presented and evaluated in relation to their impact on industrial production. Industrial applications including, hydraulic pistons, excavation tools, ball valves, drive shafts, continuous casting copper molds and pot rolls for continuous galvanizing lines in steel mills, are used to demonstrate this modified laser cladding processes in combination with thermal spray processes.



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#### Recent Advances in Materials and New Industries Entering the Thermal Spray Field – Thermal Spray Equipment for Use in These Industries and Applications

Robert Gansert, Advanced Materials and Technology Services, Simi Valley, CA

Advances in materials along with newer industries joining the thermal spray field occur every several years. This talk will briefly discuss the class of ultrafine and near-nano grained materials entering the thermal spray industry. Thermal sprayed coatings produced from ultrafine and near-nano grained powders provide improved properties as compared to conventional (micron size) powders. These materials show significant potential for many industry applications (aerospace, oil and gas, industrial gas turbine). Sintered (SPS) ultrafine and near-nano light alloys (Al-, titanium-based) will be discussed as well as high velocity oxygen-fuel (HVOF) spraved WC-Co-Cr and WC-Co carbides. Several industries have made a notable contribution to the thermal spray industry over the past several years. A brief review of one of these, the electronics industry entering the thermal spray industry will be discussed.

And lastly, with the advancements in materials and industries, we see the advancements in equipment(s) and operations in supporting the higher requirements required by these industries. This ranges from mass-flow controlled equipment- to robotics, to vacuum plasma spray chamber usage in solar, electronics, and semiconductor applications to meet high purity (e.g., low oxygen, phase stability) requirements of these coatings.

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#### Camfil Farr APC To Build New UK Manufacturing Facility Camfil Farr Air Pollution Control,

Canfil Farr Camfil Farr a leading g

Camfil Farr Air Pollution Control, a leading global manufacturer of dust and fume collection

equipment, has announced plans to open a 40,000 sq ft (3,716 sq meter) facility in the United Kingdom to serve industrial customers throughout the UK and Europe.

Work is already underway for the new plant, which is located in the Birch Business Park in Heywood, Greater Manchester, UK. The facility is expected to open in January 2013. When it is fully operational, Camfil Farr APC expects to employ more than 100 people in engineering, metal fabrication, welding and assembly positions.

"We are making a significant investment in the new UK manufacturing plant to allow us to service our European customer base more effectively," states Rick Kreczmer, European sales director for Camfil Farr APC. "We will be able to supply products fast while still giving customers exactly what they require for their individual applications: quality dust collection equipment, fabricated to their needs and shipped on time. We intend to meet and exceed customer expectations."

Company president Lee Morgan adds: "Camfil Farr APC has grown into a global dust collection company over the past five years, with our most dramatic growth in the UK and European industrial markets. This strategically located



Camfil Farr APC president Lee Morgan (third from right) and European sales director Rick Kreczmer (second from right) gather outside the planned UK manufacturing facility with other company representatives and local officials.

facility will allow us to be more responsive to customer needs in Europe and to expand our manufacturing capacity to meet both short- and long-term goals."

Camfil Farr APC makes dust collection equipment that cleans up manufacturing processes for safer, more productive plant environments. Typical applications include laser and plasma cutting, thermal spray operations,

Systems & Equipment

welding, pharmaceutical manufacturing, chemical and food processing, and fiberglass manufacturing. Camfil products meet CE, ATEX and other European requirements.

For general company information in the United States and Canada, contact Camfil Farr APC at (800) 479-6801 or (870) 933-8048; e-mail filterman@farrapc.com; web www.farrapc.com.

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#### Thermal Spray, The Cap and Gown of Green Technology

Plasma Powders and Systems will be promoting the Thermal Spray Industry at The Green California Community Colleges Summit to be held at the Pasadena Convention Center on September 27 and 28. The Green California Community Colleges Summit was created to support the school system's efforts to provide a forum for innovations in technology policy and practice. The Summit will be held in conjunction with the Green California Schools Summit, giving registrants access to additional education sessions and a broader Expo.

On September 27, Plasma Powders and Systems will make a presentation entitled Thermal Spray: the Cap and Gown of Green Technology. It will provide a three-part introduction into Thermal Spray starting with a summary of the various applications which will be followed by a summary of processes used. Finally, a discussion will focus on how to specify a Thermal Spray operation to insure the desired results.

Attendees will understand the basics of Thermal Spray, along with examples. They will also learn how to specify Thermal Spray.

The presenter is Don Potenza, West Coast Representative, Environmental Specialist, Plasma Powders and Systems.

*For more information,* contact Dale Moody DaleRMoody@aol.com or visit the College website www.green-technology.org/ccsummit/education-program.html

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#### Free DIN Standards Poster

GTS – the Association of Thermal Sprayers – has produced this spectacular new poster of *"Thermal Spraying: Standards and Technical Bulletins"*.

The poster identifies DIN Standards for Thermal Spraying and the DVS Technical Bulletins. The



standards/bulletin names are in German and in English.

The poster provides contact information for obtaining the complete version Standards and Bulletins.

The International Thermal Spray Association is proud to be one of the sponsors of this project.

Send request for poster to itsa@thermalspray.org.

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#### **Ellison Surface Technologies Announces Plans for Mexico**

Ellison Surface Technologies, Inc (EST) announced plans to open a new thermal spray coating and special process facility in Sonora, a state located in the northwestern region of Mexico. The announcement was made official at a special ceremony at the Farnborough International Air Show. The Ellison facility in Mexico is expected to be in production by the end of 2013.

"We are excited to be a part of the Farnborough Air Show and to utilize this great event as a platform for announcing our plans to open a new facility in Mexico," said C. Michael Ellison, President and CEO of Ellison Surface Technologies. "The Mexican expansion is a principal part of our long-term strategic initiatives and we look forward to being an integral part of the growing aerospace and industrial gas turbine manufacturing cluster in Sonora."

Participating in the ceremony alongside executives from Ellison Surface Technologies were representatives from the State of Sonora and Federal government of Mexico. Mr. Moises Gomez Reyna, Secretary of Economy for the State of Sonora stated, "The investment of Ellison marks a significant expansion of Sonora's capabilities in aeroindustrial gas turbine component engine and manufacturing. The highly complex coating processes to be performed by Ellison will unlock significant new business opportunities for our aerospace machining companies and will open the door to new investments in the area."

About Ellison Surface Technologies: Founded in 1986 in Hebron, Kentucky, Ellison Surface Technologies is an expert provider of thermal spray coating and special processes to many of the world's largest manufacturers of aircraft engine and industrial gas turbine components. Headquartered in the northern suburbs of Cincinnati, EST operates coating facilities across the United States and in Canada.

For more information, contact Eric Dolby, Marketing Manager via email edolby@ellisonsurfacetech.com

#### FW Gartner Thermal Spraying Ltd Receives **IS09001 Accreditation**

In response to the needs of it's domestic and international customer and partner base, FW Gartner, the Houston based



provider of thermal spray coatings, laser and PTA claddings, and more recently a dedicated machine shop, has been awarded IS09001 accreditation bv TUV Rhineland. This is another

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important step in the ongoing growth and development of the family owned company in business since 1923, and now with a presence in Canada, Brazil, Australia and Saudi Arabia, with more to follow...watch this space!

For further information visit www.fwgts.com or call (713) 2250010.



#### Praxair Surface Technologies Enters Long-Term Agreement with Heroux-Devtek for Coatings of Airframe Components

Praxair Surface Technologies, Inc., a wholly-owned subsidiary of Praxair, Inc. (NYSE: PX), recently announced the signing of a multi-year sourcing agreement with Héroux-Devtek Inc. (TSX: HRX), a leading Canadian manufacturer of aerospace and industrial products, for the application of high-performance surface coatings for airframe components. The agreement initially covers coating support for two specific airframe component programs.

Under terms of the agreement, Praxair will apply SermeTel® coating products to Messier-Bugatti-Dowty landing gear components for the Bombardier Global Express long-range business jet and components for the Airbus A330 and A340 wide-body commercial jetliners.

"We are pleased to be entering into a long-term agreement with Héroux-Devtek that allows us to play an extended role in serving its landing gear product lines," said Freddie Sarhan, director of Canadian Operations for Praxair Surface Technologies. "This relationship is reflective of our ability to provide consistent quality coatings from our extensive global plant network."

"Héroux-Devtek looks forward to furthering its relationship with Praxair Surface Technologies who has positioned itself as a trusted global source of high-quality surface coatings to the aviation industry," said Martin Richard, director, Supply Chain Héroux- Devtek Landing Gear division.

#### About Héroux-Devtek Inc.

Héroux-Devtek Inc., a Canadian company, serves two main market segments: Aerospace and Industrial Products, specializing in the design, development, manufacture and repair and overhaul of related systems and components. Héroux-Devtek Inc. supplies both the commercial and military sectors of the Aerospace segment with landing gear systems and airframe structural components. The Corporation also supplies the industrial segment with large components for power generation equipment and precision other industrial components for Applications. Approximately 70% of the Corporation's sales are outside Canada, mainly in the United States. The Corporation's head office is located in Longueuil, Québec with facilities in the Greater Montreal area (Longueuil, Dorval, Laval and St-Hubert); Kitchener and Toronto, Ontario; Arlington, Texas; Springfield, Cleveland and Cincinnati, Ohio; as well as Querétaro, Mexico. More information on Héroux-Devtek is available at www.herouxdevtek.com.

#### About Praxair Surface Technologies, Inc.

Praxair Surface Technologies offers a comprehensive slate of high-performance coatings and technologies to the aviation, energy, and other industries. By continuously advancing coatings technologies, Praxair Surface Technologies helps customers improve environmental performance, decrease energy consumption, extend component life, improve productivity, minimize downtime, reduce operating costs, and produce higher quality products. *For more information*, visit Praxair Surface Technologies at www.praxairsurfacetechnologies.com.

#### About Praxair, Inc.

Praxair, Inc. is the largest industrial gases company in North and South America, and one of the largest worldwide, with 2011 sales of \$11 billion. The company produces, sells and distributes atmospheric, process and specialty gases, and high-performance surface coatings. Praxair products, services and technologies are making our planet more productive by bringing efficiency and environmental benefits to a wide variety of industries, including aerospace, chemicals, food and beverage, electronics, energy, healthcare, manufacturing, metals and others.

For more information, visit www.praxair.com.

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#### Offshore Oil Platform Protected by Thermal Spray

Metallisation customer, Gardwell Coatings Limited, based in East Anglia, has applied Thermal Sprayed Aluminium to an offshore oil platform to protect the structure from corrosion, using Metallisation MK73 flame spray equipment.



The offshore oil platform has been designed and constructed by SLP Engineering, the UK's most experienced EP(I)C company. SLP commissioned Gardwell Coatings to thermal spray the structure, which will be erected in the North Sea oilfields later this year. Gardwell Coatings is one of the largest blasting companies in the UK and was established to service the oil and gas industry. The offshore platform is a three-leg tubular steel Jacket weighing around 436 tons, with the topsides weighing around 345 tons. The centre core of the jacket is 88.91 ft (27.1m) long with three, 3.28 ft (1m) diameter main tubular columns. The insides of the columns were thermal sprayed with 0.0098-0.0157 in  $(250 - 400 \mu)$  of aluminium, sealed with an epoxy sealer. Around two thirds of the external surface of the columns, which will be in the splash zone and exposed to the harsh North Sea, were thermal sprayed to the same thickness, sealed with epoxy sealer and top coated with a PU topcoat. In addition, a number of stainless steel parts and riser pipes have also been thermal sprayed and sealed. In total, around 4,843 sq ft (450 sg m) of the centre core has been thermal sprayed.



Continued on page 16.



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# APPLICATION NEWS

#### Continued from page 15.

The top section and the platform's support braces were also thermal sprayed, sealed and top coated with PU, totalling another 5,381 sq ft (500 sq m). Once the centre core and top section were welded together, the weld joints were also thermal sprayed, sealed and top coated to complete the task and ensure all sections have been protected.





Gardwell Coatings completed the thermal spraying process on site at the SLP Engineering site in Lowestoft using the Metallisation MK73 system. Gardwell Coatings recently purchased an additional three MK73 systems with long supplies packs. With the longer supplies pack, up to 50m from the gas bottles to the pistol, the operators have the flexibility to freely move around the large jacket structure without moving the gas supplies, greatly increasing productivity. The team generally used five pistols on the



job at any one time and sprayed an average of around 1,076 sq ft (100 sq m) thermal spray applications a day. Given the complexity of the job, which included the internal coating of the 3.28 ft (1m) diameter tubular sections, this production rate is quite an achievement.

Prior to thermal spraying the platform surfaces, each section was grit blasted overnight ready to be sprayed during the day. The spraying chamber was maintained at a controlled temperature with up to 2.2 million BTU of heating available to ensure optimum quality of the coating. By applying thermal spray aluminium the platform has a predicted life to first maintenance in excess of 20 years, even in the harsh environment that is the North Sea oilfields.

Chris Green, Operations Manager at Gardwell Coatings, says: "Metallisation offers good product support and the equipment has allowed us to deliver a higher than anticipated production rate, which is pretty good considering the complexity of the job. The efficiency of the MK73 has allowed us to exceed the expectations of our customer SLP for the coating timescales. Overall I'm pleased with the outcome of this project."

Metallisation's MK73 Flamespray gun represents a breakthrough in anti-corrosion spraying. With a choice of continuous or stop/start nozzles and a combination of the spray head, pilot assembly and a high power air motor drive, it is one of the fastest and most reliable system in existence.

The MK73 system is also fitted with a spreader attachment to the spray head. This spreader assists the operator to produce a more evenly distributed coating, which improves efficiency and reduces the potential for touch-up reworks to be done.

Thermal spraying involves the projection of small molten particles onto a blast prepared surface. Upon contact, the particles flatten onto the surface, freeze and mechanically bond, firstly onto the blasted substrate and then onto each other, as the coating thickness is increased. To create the molten particles, a heat source, a spray material and an atomisation/projection method are required.

In the Flamespray process a wire is fed by a driven roller system through the centre of an oxygen-fuel gas flame where it is melted. An annular air nozzle then applies a jet of high-pressure air, which atomises and projects the molten material, in this case aluminium, onto the platform's surface. Typical bond strengths for flame sprayed aluminium are around 725- 1015 psi (5-7 MPa), although with careful preparation and quality spraying procedures, this figure can be exceeded.

*For more information* please contact Stuart Milton on 01384 252 464 or visit www.metallisation.com

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#### Wall Colmonoy Officially Opens New 23,500 sq ft Machining Facility at UK Site



We are pleased to announce the official opening of our new machining facility at our UK site. The opening follows a 2 million UK pounds grant from the Welsh Government, underpinning the company's 9 million UK pound expansion.

This expansion will allow us to meet our customers' rising demands for our products and services by adding capacity and advancing our processes and equipment. It will also safeguard existing and create new jobs at our Swanseabased site.

As a company servicing worldwide industries such as aerospace, automotive, oil and gas, mining and energy amongst others, this investment marks the continued globalisation of Wall Colmonoy; experts in the manufacturing of surfacing and brazing products, castings, and engineered components.

*For more information*, please contact Lucy Williams, Wall Colmonoy, Marketing Manager, Europe at lucywilliams@wallcolmonoy.co.uk



*To reserve your booth space*, contact Joe Krall, Exposition Sales, 800.443.9353, jkrall@aws.org

#### New Spark Arrestor Protects Against Dust Collector Fires

Camfil Farr APC has introduced a new spark arrestor that provides superior protection to its Gold Series<sup>®</sup> cartridge dust and fume collection systems. The new spark arrestor works without perforations or screens to take control of sparks and channel them away from the filters and into the dust collector's hopper, reducing the chance of fire.

Applications include welding, plasma cutting, laser cutting and other spark-producing operations that do not involve combustible dust.\*



Unlike conventional perforated plate-type arrestors, the Camfil Farr APC device works by creating torturous paths that give sparks and embers more time to lose the energy that they contain as they are directed to a safe area, while adding very little static pressure loss to the system. In addition, it is less likely to plug and accumulate material than perforated spark baffle systems. The inlet transition is reversible and provides horizontal or vertical entry without compromising control of the spark.

Modular construction of the arrestor makes it possible to handle varying air flow volumes. Each module can handle a maximum of 10,000 cfm, but the optimal volume is 7,000 cfm where static pressure is less than 2" w.g. The unit also contains an access door to clean out debris that may enter the dust collection system.

The new spark arrestor is offered as an option on new or existing Gold Series dust collectors.

*For product information*, visit website www.farrapc.com/products/gold-series/spark-arrestor.

For general company information in the United States and Canada, contact Camfil Farr APC at (800) 479-6801 or (870) 933-8048; e-mail filterman@farrapc.com; web www.farrapc.com.

For general information outside the United States and Canada, visit www.camfilfarrapc.com.

4th Thermal Spray Conference at Fabtech Tuesday, November 13

Mark your calendar now for travel to Las Vegas for the fourth annual one-day Thermal Spray Conference.

#### Thermal Spray Technologies, Inc. Announces Dynamic New You Tube Station

Thermal Spray Technologies, Inc. (TST, Inc.) is pleased to announce the recent launch of their You Tube channel at www.youtube.com/user/TSTCoatings.

TST, Inc. is using the channel as a vehicle for sharing a number of videos that highlight the company's various coating technologies. Video topics on the site include "Flame Sprayed Coating", "Electric Arc Spray", "Plasma Spray", and "HVOF and Carbide Coatings". The channel also provides an outlet for sharing exciting videos of recent events, activities, and press worthy announcements such as visits from Wisconsin Governor Scott Walker.

The technology used at TST, Inc. provides dynamic and intriguing subject matter for use in video development. Viewers have the opportunity to gain a better understanding of the unique processes involved in custom spraying and coating work.

TST, Inc. has integrated a social sharing link on their website that serves as a conduit to their You Tube page; encouraging customers and other interested parties to learn more about the company's spray coating technologies and applications.

#### About Thermal Spray Technologies, Inc.

Thermal Spray Technologies, Inc. specializes in custom coating solutions using leading edge technology and equipment for electric arc spraying, flame sprayed coatings,

plasma spraying, and high velocity oxy fuel (HVOF) coatings. The company offers coating solutions that are guaranteed to meet the engineered surface requirements that must be met for each and every unique application. With more than 13 thermal spray cells in their 40,000 sq ft, state-of-the-art facility, TST, Inc. can provide engineered coatings for any volume of production.

Thermal Spray Technologies, Inc. provides innovative coating solutions to meet the needs of companies across a variety of industries. From medical instruments to aerospace components, TST Inc. ensures enhanced performance and increased usable life for any coated products. The company practices environmental steward-ship with 100% recycling of all waste materials and can provide finishing capabilities that include cylindrical grinding, super finishing, and lapping.

TST Inc. is proud to collaborate with the University of Wisconsin Madison for research and technology development.

The company's manufacturing facility is located in Sun Prairie, Wisconsin.

*More information* about Thermal Spray Technologies, Inc. is available online at www.tstcoatings.com or by calling 608-825-2772.

Thermal Spray Jobs listed at "For Hire" www.thermalspray.org



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SURFACE TECHNOLOGIES



#### ITSA Mission Statement

The International Thermal Spray Association, a Standing Committee of the American Welding Society, is a professional industrial organization dedicated to expanding the use of thermal spray technologies for the benefit of industry and society.

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A standing committee of the American Welding Society\*

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 association, ITSA invites all interested companies to talk with our officers, and company representatives to better understand member benefits. A complete list of

ITSA member companies and their representatives can be found at www.thermalspray.org

ITSA Mission Statement The International Thermal Spray Association, a Standing Committee of The American Welding Society, is a professional industrial organization dedicated to expanding the use of thermal spray technologies for the benefit of industry and society.

#### **Officers**

Chairman: *David Wright*, Accuwright Industries, Inc. Vice-Chairman: *Jason Falzon*, FW Gartner Thermal Spraying Treasurer: *Bill Mosier*, Polymet Corporation Corporate Secretary: *Kathy Dusa* **Executive Committee** (above officers plus the following) *Dan Hayden*, Hayden Corporation *John Read*, Cadorath Plating Ltd.

Joseph Stricker, St. Louis Metallizing Company

#### **ITSA Scholarship Opportunities**

The International Thermal Spray Association offers annual Graduate 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 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, OH and the State University of New York at Stony Brook in the Thermal Spray Research Center, 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 historic 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.

#### **ITSA Headquarters**

Post Office Box 1638, Painesville, OH 44077 USA voice/cell: 440.357.5400 • fax: 440.357.5430 itsa@thermalspray.org • www.thermalspray.org

#### Become a Member of The International Thermal Spray Association

Your company should join the International Thermal Spray Association (ITSA) now! As a company-member, professional industrial association, our mission is dedicated to expanding the use of thermal spray technologies for the benefit of industry and society.

ITSA members invite and welcome your company to join us in this endeavor.

#### New - All ITSA company members are now also Supporting Members of the American Welding Society.

Whether you are a job shop, a captive in-house facility, an equipment or materials supplier, an educational campus, or a surface engineering consultant, ITSA membership will be of value to your organization.

The most valuable member asset is our annual membership meetings where the networking is priceless! Our meetings provide a mutually rewarding experience for all attendees - both business and personal. Our one-day technical program and half-day business meeting balanced by social activities provide numerous opportunities to discuss the needs and practices of thermal spray equipment and processes with one another.

As an ITSA member, your company has excellent marketing exposure by being listed on our website along with a multitude of additional benefits. ITSA member companies are also highlighted in the ITSA booth at several trade shows throughout the year (International Thermal Spray Conference ITSC, Fabtech Thermal Spray Pavilion and Conference, Weldmex Mexico, PowerGen, Society of Vacuum Coaters and TurboExpo).

*If you would like to discuss the benefits* of your company becoming a member of the International Thermal Spray Association, we suggest you contact Kathy Dusa at ITSA headquarters office, phone 440.357.5400 or visit the membership section at www.thermalspray.org.

**NEW "Supporting Societies" Membership** 

The International Thermal Spray Association is pleased to announce a new "Supporting Societies" membership category to establish communication with other associations/societies involved in thermal spray and surface engineering activities worldwide.

See the Supporting Societies listing on page 21.

This is ideal for membership exchange between organizations. Contact Kathy Dusa at the headquarters office via email to itsa@thermalspray.org



#### Scholarship Opportunities

Since 1991, the *International Thermal Spray Scholarship Program* has contributed to the growth of the thermal spray community. ITSA

offers up to three Graduate Scholarships worth \$2,000.00 each.

Applications accepted April 15 through June 30 ONLY. Please visit www.thermalspray.org scholarship area for details and a printable application form.

#### ITSA On Facebook

Dear Thermal Spray Colleague,

The International Thermal Spray Association now has a very basic Facebook Page. If you are a Facebook user, you can simply type in thermal spray in the top search engine. At that point, select "like" and you will be connected to the ITSA page. Right now, we have our ITSA promotion video on the page, plus a few recent messages. We are not sure how and to what extent this will be used, but it was apparent by some recent and continuing requests that we be there. If you are a Facebook visitor, enjoy.

Thermal Spray Jobs listed at "For Hire" www.thermalspray.org

#### 4th Thermal Spray Conference at Fabtech Tuesday, November 13

Mark your calendar now for travel to Las Vegas for the fourth annual one-day Thermal Spray Conference.

#### International Thermal spray Association Welcomes New Member

*Southwest United Industries, Inc.* has joined the International Thermal Spray Association.

Southwest United Industries was established in 1953.



Today it is an industry leader in providing complete metal finishing services as well as aviation component repair and overhaul from its 130,000 sq ft facilities in Tulsa and 30,000 sq ft facilities in Oklahoma City.

Southwest primarily serves the Aerospace and Defense industries but also supports the medical, oil and gas, and general industrial base as well. Their services include chrome, cadmium and nickel plating; plasma and HVOF thermal spray coating; hard, chromic, boric and sulfuric anodizing, including chemical conversion coating; all types of painting, including dry film lube and Teflon; non-destructive testing; shot peening; all types of precision grinding including OD, ID, surface, spherical and super-finishing.

Southwest maintains NADCAP accreditation for all processes as well as an extensive list of customer specific approvals including Boeing, Lockheed Martin, Bell Helicopter, Northrop Grumman, Goodrich, Messier-Dowty, Gulfstream, Bombardier, Embraer, Honeywell, Parker and Cessna.

Southwest has a highly skilled team of coating and production engineers along with an outstanding support staff together having many hundreds of years of experience. Southwest, through these fine people, offer unrivaled quality and service. Southwest United is committed to continuous improvement in order to provide our customers with improved coatings solutions while reducing the costs and lead time.

*For more information*, contact ITSA company representative Bill Emery via email aandoe@swunited.com and visit www.swunited.com

#### FABTECH

#### **Thermal Spray Pavilion**

Join the International Thermal Spray Association at the Fabtech Thermal Spray Pavilion

this year in Las Vegas, NV November 12-14, 2012.



*To reserve your booth space*, contact Joe Krall, Exposition Sales, 800.443.9353, jkrall@aws.org











American Welding Society www.awsweldmex.com (800) 443 9353 x 297



Fabricators & Manufacturers Association, Intl www.fabtechmexico.com (800) 432 2832 x 271



Society of Manufacturing Engineers www.fabtechmexico.com (800) 733 3976 x 3126



Precision Metalforming Association www.metalform.com (216) 901 8800 x 155

#### Invitation to Join IZA Zn Thermal Spraying



#### Development Program

As a result of discussions at the *International Zinc Association* (IZA)

meetings during the first half of 2012, IZA is now prepared to offer companies the opportunity to join the Zinc Thermal Spraying Development Program.

It was agreed in the May 14 meeting in Munich that work should be limited to the following two tasks: 1. Double the European market for Zn thermal sprayed coatings, focusing at first on corrosion protection for offshore windmill applications by developing a common marketing platform for all program members; 2. Raise awareness of the benefits of Zn thermal spraying in other regions, especially China and North America, contributing to global market growth

*To join the Program or get more information*, please contact the International Zinc Association, Avenue de Tervueren 168, Box 4; B-1150 Brussels, Belgium; Tel: +32.2.776.0070 Fax: +32.2.776.0089; email: contact@zinc.org, website: http://www.zinc.org

#### 4th Thermal Spray Conference at Fabtech Tuesday, November 13

Mark your calendar now for travel to Las Vegas for the fourth annual one-day Thermal Spray Conference.

#### ASB Industries Receives FAA Repair Station Certification for Magnesium Gear Box Components

ASB Industries, Barberton, Ohio, announces that its High-Pressure Cold Spray R&D efforts enabled the company to achieve FAA Repair Station Certification. Research in fundamental physics and science was the basis for development of advanced rebuilding techniques for economically reclaiming structurally sound magnesium gear box components in rotorcraft and other aerospace equipment.

ASB Industries equipment and material development was necessary for FAA inspectors to understand and accept the Cold Spray process as a viable repair method. European and Australian companies have embraced the process for military aircraft, because it has proven to be an exceptional repair method due to material purity, bond strength, and fundamental material properties.

The Air Agency Certificate issued from the United States of America Department of Transportation Federal Aviation Administration on June 1st, 2012. Certificate Number: 4SBR037C

One of their customers, Sikorsky Aircraft, has approved ASB for critical component repair. Sikorsky also notes the leadership of ASB Industries in developing and proving the process and procedures for valuable gear box repair.

Continued on page 26.



Introducing **d Spray** PCS-1000

#### heats to 1000 degrees C and can handle pressures up to 5MPa

GIKE

#### High production value... no clogging

Plasma Giken has developed new, no-clog cold spray technology for varied applications in chemical, aerospace, semi-conductor, energy, and medical industries. The Cold Spray PCS-1000 advancements make possible the application of even difficult metals such as Ni, Ti, Ti6Al4V, Inconel alloys, and stainless steel at thicknesses of more than 10mm, while maintaining nearly 100% deposition efficiency for maximum reliability and performance. **Don't believe it? Contact us for some samples, or visit our Open Laboratory and test it for yourself.** 

#### Continued from page 25.

ASB Industries dedicated high pressure cold spray booths offer the most up-to-date hardware and software to provide the highest quality coating solutions and meet unique material requirements. Each large, enclosed spray area has robotic, rotating equipment to fixture unique part configurations, along with surface preparation and inspection equipment and a closed-circuit viewing system. Our cold spray technology also includes a vast array of equipment to manage powder handling and preparation, as well as equipment to prepare the specific material chemistries for your application.

For more information, visit www.asbindustries.com

#### LENIUM<sup>®</sup> GS: Approved to Boeing BAC 5408 for Vapor Degreasing Petroferm Petroferm Inc., Cleaning

Products is pleased to announce that LENIUM GS Precision Solvent has been approved by Boeing per BAC 5408 Vapor Degreasing Specification (PSD 6-68).

LENIUM GS is a high performance solvent based on stabilized n-propyl bromide (nPB). It may be used for general and precision cleaning operations as well as cleaning prior to thermal spray and other surface treatments. Designed to operate in open-top and vacuum vapour degreasing equipment, LENIUM GS is a trusted dropin replacement for trichloroethylene (TCE), HCFC-141b,

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DeWAL Industries offers the highest quality, most complete line of thermal spray tapes — aluminum foil, fiberglass fabric, siliconeimpregnated fiberglass, and combinations of these materials.

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Quality Approvals: GE, Pratt & Whitney, Rolls Royce, etc.

HCFC-225, hydrofluoroethers (HFEs), hydrofluorocarbons (HFCs), perchloroethylene (PCE) and methylene Chloride (MeCl). According to Bill Breault, aerospace market manager at Petroferm, "this approval provides significant value across Boeing's entire supply chain by offering a drop-in replacement to chlorinated halogens, such as TCE which is a Hazardous Air Pollutant (HAP) and US EPA ruled carcinogen. It also enhances our position as a leading supplier of approved products in all major cleaning technologies."

LENIUM GS is approved by Boeing (PSD 6-68), Bell Helicopter (Bulletin No: 1919), Praxair (ID# GDE 10055434) and Scott Aviation (SMP No. 7700009 Rev AP) for cleaning components.

For more information, visit www.petroferm.com \*BIOACT is a registered trademark of Vantage Specialties, Inc.

#### 4th Thermal Spray Conference at Fabtech Tuesday, November 13

Mark your calendar now for travel to Las Vegas for the fourth annual one-day Thermal Spray Conference.

#### PT-MAT Moves To 9000 sq ft Facility

PT-MAT announces their move to a 9000 sg ft facility in the Woodlands, North Houston, Texas area.

Less than six months after the company was created, sales and manufacturing needs required additional space for warehousing, powder handling space, a light fabrication/assembly area for PTA and other automated welding equipment.

Near future plans include a materials lab and a welding lab with automation and robotics to develop new coatings and process control.

"We are already engaged in several new developments for improved coatings in oil drilling applications" states Jean-Marc Tetevuide, general manager.

The new facility will allow PT-MAT to handle powders for PTA welding, laser cladding and thermal spray in a quality controlled environment.

Inventory being held includes hardfacing GMAW wires tungsten carbide based wires, Laser and PTAW welding powders, diamond abrasive discs, PTA equipment and torches spare parts.

For more information, contact Jean-Marc Tetevuide, Plasma Technology Automation and Material, office 1-855-PTAMATL, cell 281-702-0210

#### Join the ASM Thermal Spray Society **Online Community Forum**

ASM TSS members welcome visitors to register and access the new *searchable* forum, as well as explore the new online community.

To subscribe, visit http://tss.asminternational.org, choose networking and forum for instructions.

#### 0 R A T .

# INFINITE

#### [ SAVE THE DATE ] DECEMBER 11-13, 2012

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POWER-GEN International is the industry leader in providing comprehensive coverage of the trends, technologies and issues facing the generation sector. As the need to operate more efficiently and cost effectively becomes increasingly important, no other event bridges challenges with solutions like POWER-GEN International.

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Α

Is Your Event Listed? Send notice to spravtime@thermalsprav.org

#### **CALENDAR OF EVENTS** 2012

#### SEPTEMBER 2012

24-27 Houston, TX USA 41st Turbomachinery Users Symposium and 27th Pump Users Symposium - visit http://turbolab.tamu.edu

#### **OCTOBER 2012**

7-11 Pittsburgh, PA USA MS&T'12 Materials Science & Technoloav Conference and Exhibition visit www.matscitech.org

9-12 Vienna, Austria Vienna-Tec - International Fair for Industry and Trade - visit www.vienna-tec.at

23-27 Hanover, Germany EuroBLECH 2012 22nd Int'l Sheet Metal Working Technology - visit www.euroblech.com

**29-31 India** Essen Welding Cutting Surfacing with Metallurgy India and Tube India - www.schweissen-schneiden.com

30 OCT - 1 NOV Worcester, MA USA North American Cold Spray Conference co-located with Cold Spray Action Team Fall *meeting* - visit www.asminternational.org/coldspray

#### **NOVEMBER 2012**

8-9 Erding, Germany 9th HVOF High Velocity Oxy-Fuel Flame Spraying Colloquium 2012 - email hvof@qtsev.de, web hvof.qts-ev.de



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#### **Finishing Online** Website Now Includes Thermal Spray

The website "Finishing Online" (www.finishingonline.com) now includes "thermal spray" in an "industries" area. Evervone is eligible for a basic free listing for one year. Go to their website to register and get your free listing.

11-15 Phoenix, AZ USA ISTFA 2012 38th Int'l Symposium for Testing and Failure Analysis - visit www.istfa.org

12-14 Las Vegas, NV USA FABTECH with FABTECH a Thermal Spray Pavilion and Conference visit www.fabtechexpo.com

26-28 Ibaraki, Japan ATSC 2012 5th

Asian Thermal Spray Conference - Organized by Japan Thermal Spray Society and Asian Thermal Spray Society www.jtss.or.jp/atsc2012

#### **DECEMBER 2012**

12-13 Orlando, FL USA Power-Gen Conference and Exposition - visit www.power-gen.com

#### 2013

#### **JANUARY 2013**

7-10 Dubai, United Arab Emirates Arabia Essen Welding and Cutting Int'l Trade Fair Joining, Cutting, Surfacing contact Messe-Essen christina.kleinpass@messe-essen.de

#### **MARCH 2013**

17-21 Orlando, FL USA Corrosion 2013 - visit www.nace.org

**17-21 Doha, Qatar** *Middle East Turbomachinery* Symposium - contact turbolab@tamu.edu.

#### **MAY 2013**

7-9 Monterrey, Mexico 5th Fabtech Mexico - visit fabtechmexico.com

**13-15 Busan. Republic of Korea** International Thermal Spray Conference and Exposition ITSC2013 - visit www.asminternational.org/itsc



Mark your calendar now for travel to Las Vegas for the fourth annual oneday Thermal Spray Conference.

#### **JUNE 2013**

June Salt Lake City, UT USA International Thermal Spray Association Annual Membership Meeting email itsa@thermalspray.org

#### **SEPTEMBER 2013**

16-21 Essen, Germany Int'l Trade Fair Joining Cutting Surfacing - visit www.schweissen-schneiden.com **NOVEMBER 2013** 

TBD Chicago, IL USA FABTECH with a FABTECH Thermal Spray Pavilion and Conference visit www.fabtechexpo.com

#### 2014

#### **MARCH 2014**

9-13 San Antonio, TX USA Corrosion 2014 - visit www.nace.org

Where is your article? We encourage you to send articles, news, announcements and information to spraytime@thermalspray.org.

#### Thermal Spray Technology

ASSOCIATION evand Technique Tor

**Highlighted At Fabtech Show** Las Vegas Convention Center November 12-14, 2012

#### Thermal Spray Basics: Putting Coatings To Work

Free Tutorial • 1:00 - 5:00 PM Monday, November 12, 2012 • Registration Code: W30

Thermal Spray Technologies: High Performance Surfaces Conference 17 Speaker Presentations • 9:00 AM - 5:00 PM Tuesday, November 13, 2012 • Registration Code: W29

**Thermal Spray Pavilion Exhibitors** November 12-14, 2012 • Visit Aisle 2400 North

Visit www.fabtechexpo.com to Register



The business social network "LinkedIn" has a group titled "Thermal Spray Coating" currently with 431 members and some discussions.

If you are interested, please visit www.linkedin.com and join the network and then join the group.

#### Journal of Thermal Sprav Technoloav® A publication of the **ASM Thermal Spray Society** Characterization of Thermal Diffusion Related Properties in Plasma Spraved Zirconium Coatings K.J. Hollis, M.E. Hawley, and P.O. Dickerson

Zirconium (Zr) metal is of interest for chemical corrosion protection and nuclear reactor core applications. Inert chamber plasma spraving has been used to produce thin Zr coatings on stainless steel (SS) substrates. The coatings were deposited while using transferred arc (TA) cleaning/heating at five different current levels. In order to better understand thermal diffusion governed processes, the coating porosity, grain size and interdiffusion with the substrate were measured as a function of TA current. Low porosity (3.5 to <0.5%), recrystallization with fine equiaxed grain size (3-8 µm diameter) and varving elemental diffusion distance (0-50 µm) from the coating-substrate interface were observed. In addition, the coatings were low in oxygen content compared to the wrought SS substrates. The Zr coatings sprayed under these conditions look promising for highly demanding applications.

Read the entire article in the March 2012 Issue Visit www.asminternational.org/tss **Editor:** Christian Moreau • Lead Editor: Basil Marple Editor Emeritus: Christopher C. Berndt **Associate Editors:** Kendall Hollis, Seiji Kuroda, Chang-Jiu Li and Armelle Vardelle



#### Free Poster

From Linde and the GTS (Association of Thermal Sprayers) illustrates the different thermal spray processes (suitable for framing).

Send request for poster via email to itsa@thermalspray.org

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#### Element Materials Technology Acquires Detroit Testing Laboratory

Element Materials Technology today announces the acquisition of Materials Engineering Research Laboratory Limited (MERL) headquartered in Hitchin, Hertfordshire, UK. The addition of MERL and its world-class reputation for the evaluation, analysis and testing of polymeric materials, components and structures is further evidence of Elements resolve to providing industry-leading service for the growing implementation of non-metallics.

"I'm very pleased to announce this addition emphasizing our continued commitment to reinforce our service offering of quality-critical polymer and composite testing in multiple industries," said Charles Noall, President and CEO of Element.

Founded in 1986, MERL has developed into an independent company with thousands of international clients throughout the oil and gas, aerospace, and land transportation sectors. Their range of projects include ensuring the safe and reliable use of materials in offshore oil and gas exploration, new polymer material for heart valves, and composite materials in aircraft structures.

"We are delighted to join Element," said Dr. Rod Martin, CEO of MERL Ltd. "Not only will this allow us to give our existing clients a much wider technology offering, it also presents MERL staff with greater opportunities to broaden their skills working closely with Element laboratories throughout the United States and Europe."

MERL's four-laboratory campus is fully-equipped and staffed by 35 employees with expertise covering the safe and reliable use of elastomers, composites, adhesives and thermoplastics. Nearly half of their staff hold a PhD or decades of R&D experience.

"Bringing MERL's expertise into the Element fold will further expand our capabilities and capacity for servicing a growing demand for non-metallics, both in established and emerging sectors," said Noall.

Element is a global network of laboratories with experts specializing in materials testing, product qualification testing and failure analysis for the aerospace and defense, oil and gas, power generation, and transportation sectors. Their team of 1000 scientists, engineers and technicians work in laboratories located throughout the United States and Europe.

*For more information* and complete accreditations and approvals, please visit www.Element.com.

#### 4th Thermal Spray Conference at Fabtech Tuesday, November 13

Mark your calendar now for travel to Las Vegas for the fourth annual one-day Thermal Spray Conference.

Is Your Employee Listed? Send notice to spraytime@thermalspray.org

#### Kevin Nolan Appointed European Managing Director for Wall Colmonoy

After 44 years under the successful management of Norman Allnatt, who retired earlier this month, Wall Colmonoy's European Headquarters in Pontardawe, Wales

has appointed *Kevin Nolan* as their new Managing Director. Kevin is an experienced Managing Director with over thirty years in employment across industries including automotive, aerospace, gas turbine and domestic appliance.

Kevin joins us after thirteen years with the Doncasters Group. His positions there

included managing director of the Turbine Airfoils Division in Woucestershire, U.K. and vice president of six fabrication and combustor plants, one of which was based in Southern California where Kevin resided for two years with his family. His career began in 1983, with Kigass Engineering.

Kevin said of his new appointment, "'I am pleased to find I have joined a company that has sustained its growth aspirations throughout a recessionary period. I am looking to build on the excellent footprint that has been built here over many years; paying particular attention to winning new business that matches Wall Colmonoy's core competencies whilst also focusing on operational excellence.

Wall Colmonoy is a global materials engineering group of companies engaged in the manufacturing of surfacing and brazing products, castings, and engineered components across aerospace, automotive, oil & gas, mining, energy and other industrial sectors.

Combining over 70 years of engineering technology with a progressive, visionary outlook, Wall Colmonoy offers customers trusted, customized expertise that results in smart innovation and shared growth.

For more information, visit www.wallcolmonoy.com





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#### http://turbolab.tamu.edu





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