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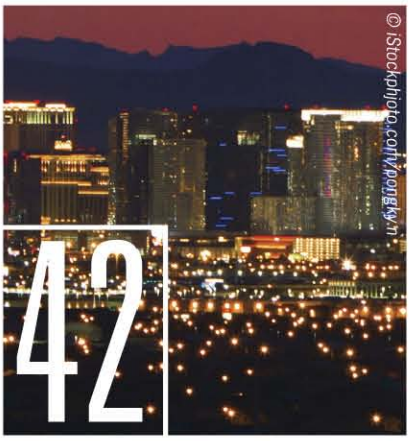
Features



Departments

Also This Month

From the Offices of SSPC

Staff

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SSPC 2015 in Las Vegas

From February 3 to 6, SSPC will be holding its annual show in one of the world-renowned fun spots of the United States: Las Vegas, home to mega-hotels, casinos, entertainment and downright fun. The city offers such a variety of entertainment that there is something to do for everyone.

This year our conference will be held at the Westgate Resort and Casino, across from the Las Vegas Convention Center, and will be held the same week as the World of Concrete. I have been asked many times if we knew the World of Concrete was scheduled the same time as our show; the answer is yes. We are trying to seize the opportunity to attract those World of Concrete attendees to come across the street and learn about protective coatings. We are offering to their attendees a no-cost pass to visit our exhibit hall, and they are offering a discounted price of $30 for those of you who want to walk through their exhibit hall. Some could say that holding our conference the same week as World of Concrete is a risk, but I say it is a calculated risk.

SSPC 2015 is a chance for all individuals involved in the coatings industry to hear about the latest technology, see the latest equipment and interact with their colleagues. There is only one conference dedicated to the protection of steel, concrete and other substrates by the use of protective coatings, and it is ours. As I am writing this, we are scheduled to have in our technical program nine workshops, 77 presentations, the Mega Rust mid-year meeting, an International Spotlight, and new to the show this year is a Poster Papers session. Our training program remains second to none with 28 training and certification courses given. This year we are introducing five new courses: Selection of Coatings, Bridge Maintenance, Coating Specification Essentials, Inspection Planning and Documentation, and lastly, Coating of Concrete Inspection Supplement. Training and certification programs have become the bellwether of this organization, and I see SSPC 2015 only enhancing the drive we all have to improve the industry.

In addition, there will be over 35 technical committee meetings during the show. Here is where you, as a member or an attendee, can make a big difference. Too often I hear about someone or a particular group who is upset about when a standard is issued and how it hurts the industry or makes someone's work even harder. Committee meetings are where consensus standards are developed. This is your opportunity to participate and get involved to ensure that your needs and desires are heard before the standard is published. If you don't have your voice heard, it is similar to politics in that you are stuck with the same politicians until the next voting cycle. The same goes for standards.

In the exhibit hall we currently have over 240 booths assigned, including 15 first-time exhibitors, six indoor large equipment displays and five outdoor demonstration spaces. We also have eight scheduled networking opportunities. They include the Awards Luncheon, the Young Professionals meeting, the Welcome Reception, the Facility Owners' Peer Forums, the Exhibit Hall Opening Reception, the After Party, the Protective Coatings Specialist Breakfast, and the Closing Party. All of these events give you the opportunity to meet with your colleagues and discuss mutual problems, solutions, ideas, and quality time to do business. Of course, other networking opportunities are always available at other social events and hospitality suites that occur during the conference.

Please take a look at the Advance Program beginning on page 42 of this issue. You will find something that spurs your interest to come to SSPC 2015 in Vegas. This show remains the one-stop shop to learn about new products and ideas, and I can assure you the opportunity to interact with your peers, clients and customers will be invaluable. Most of all, come to the show with a smile on your face and have a good time.

With that being said, it is my desire that when you return home you will say that the trip was time well spent. I hope to see you there.

Bill Shoup

Bill Shoup
Executive Director, SSPC

D+D Takes Second Annual Conference to Miami

A three-day slate of the nation's top experts in coatings and building technology, hands-on workshops and courtroom fireworks will greet attendees at the second annual *Durability + Design* Conference, scheduled for June 8–10, 2015, at the Eden Roc Hotel in Miami Beach, Fla.

Hosted by *Durability + Design*, *JPCL*'s sister magazine, this event, geared toward architects, specifiers, suppliers, contractors, facility owners and other coating and building professionals, will examine coating and building-enclosure technologies through seminars, case history presentations, workshops, roundtable discussions and exhibits. Attendees can also expect plenty of special events and networking opportunities.

A diverse array of topics will be explored in technical sessions and workshops.

DURABILITY + DESIGN MIAMI 2015

The preliminary lineup includes:

- Achieving airtightness;
- Building science, WUFI and coatings;
- Coatings in seacoast environments;
- Coatings selection;
- Decorative concrete;
- Maintenance and restoration;
- Paint application QA; and
- The contribution of coatings to green building.

The event will also include breakfast-table forums, an exhibitors' technology forum, and a mock trial — all of which are new to next year's conference. The breakfast-table forums will allow attendees to question technical experts and join small-group discussions on focused topics. Technology forum exhibitors will give brief presentations on advances in architectural coatings and related building materials. The mock trial will tackle the high-stakes topic of liability for a major coating failure. Attendees will vote on who should assume liability — the owner, supplier, specifier or contractor.

Tentative headliners at D+D 2015 include:

- KTA-Tator president Ken Trimber, who will host a hands-on workshop on "Quality Assurance During Paint Installation" and play the facility owner in the mock trial;
- Laverne Dalgleish, executive director of the Air Barrier Association of America, who will lead a roundtable on "Achieving and Managing Airtightness";
- Andre Desjarlais, of Oak Ridge National Laboratory, who will present on "Advances in Building Enclosure Technology" with Dalgleish; and
- Science writer Cynthia Challener, Ph.D., who will host a roundtable titled "Contribution of Coatings to Green Building: Myth or Reality?"

For the second year, The Sherwin-Williams Company will serve as the premier sponsor of D+D 2015, while Bayer will return as the conference's official sponsor.

Registration for D+D 2015 is now open. Discounted early bird registration is available for attendees who complete their registration by December 31, 2014. For more information or to register for D+D 2015, visit durabilityanddesign.com/show.

SSPC Saudi Chapter Sponsors Middle East Steel Conference

The SSPC Saudi Chapter, together with the American Society of Materials (ASM-Saudi Chapter), organized the 2014 Middle East Steel Conference and Exhibition. The conference, which was held in Dubai from October 21 to 24, consisted of four tracks: Steel Protection by Coatings, Pipeline Steel, Structural Steel and Standards & Quality.

Major oil and gas companies in the region, such as Saudi Aramco and SABIC, sponsored the conference with significant support from other major petrochemical companies, coating manufacturers and steel companies. More than 80 papers were presented at the conference, addressing the latest technologies and major challenges in the industry.

Prior to the conference, SSPC organized a workshop entitled, "How to Develop a Comprehensive and Systematic

Photo courtesy of SSPC.

Coating Inspection Plan," which was presented by Thomas A. Jones, SSPC senior development specialist. In the opening speech, the chairman of the SSPC Saudi Chapter, Mana Al-Mansour, highlighted major coating challenges in the Middle East and the recommended solutions. He encouraged the participants and all concerned parties to work as one team to take the coating industry in the region to a better arena.

SSPC Vice President Gunnar Ackx participated in the conference as a keynote speaker, sharing with delegates the services provided by SSPC to improve the coating industry worldwide.

As a result of the conference success, the SSPC Saudi Chapter is planning to conduct a semiannual SSPC Middle East Coating Conference starting 2016.

SSPC PCS Roundup

Benny Abbott

Dylan J. Clement

Jeremi Day, Sr.

Terry Doyle

Several coatings professionals were certified by SSPC as Protective Coatings Specialists (PCS) in the past months. The PCS certification recognizes industrial coating professionals for their extensive knowledge in the principles and practices specific to industrial coatings technology.

The recently certified PCSs are:

- Benny Abbott, Abbott Consulting & Coating Inspections, Jasper, Ala.;
- Dylan J. Clement, Carboline Company, Thibodaux, La.;
- Jeremi Day, Sr., CCI Inspection Services, Cypress, Texas;
- Terry Doyle, United Infrastructure Group, Chester, S.C.;
- Peter Enameh, Saipem S.p.A., Nigeria;

Peter Enameh

Duane Hough

Kyle Hough

- Duane Hough, Champion Painting and Specialty Services Corp., Ft. Lauderdale, Fla.; and
- Kyle Hough, Champion Painting and Specialty Services Corp., Ft. Lauderdale, Fla.

Each coatings professional was evaluated on his or her mastery of coating type, surface preparation, coating application and inspection, contract planning/management, development of specifications and the economics of protective coatings.

To become a certified PCS, each professional is first evaluated for his or her education and work experience to determine the extent of training to be completed prior to the exam. The training courses are SSPC-C1, Fundamentals of Protective Coatings for Industrial Structures, and SSPC-C2, Specifying and Managing Protective Coating Projects. The final step is the comprehensive examination.

For information about SSPC's certification programs, visit sspc.org.

Photo courtesy of SSPC.

SSPC Executive Director Retires in 2015

The Board of Governors wishes to thank Bill Shoup for his tireless devotion and passionate leadership as executive director of SSPC for the past 15 years, as he looks forward to retirement in September 2015. When Bill began his term in 1999, SSPC was facing an uncertain future and financial challenge. Making tough decisions comes naturally to a former lieutenant colonel in the U.S. Army, and Bill relied on those strengths to lead SSPC to its current stature as a thriving, relevant, world-renowned membership organization servicing the protective coating industry. And now, as Bill gets ready to hand over the reins, it's appropriate to look at some of the accomplishments of the organization under his leadership.

Bill is the first one to say, "I didn't do this myself; I have a great staff of dedicated people who make it happen. Progress is a team effort." With the tenacity of a strong leader and a remarkably competent and dedicated team, SSPC has seen expansion of individual membership from 7,000 in 1999 to 11,000 today. Growth of organizational membership has increased over 50 percent. Training and certification programs, the backbone of SSPC, have expanded exponentially from two programs in 1995 to 39 in 2014. Globally respected and sought for our training and certification programs, we now have chapters in Canada, Spain, Saudi Arabia, India, Japan and many other countries. Our international reach continues to grow with ISO, training and accreditation. Bill has represented the mission of SSPC to constituents in Australia, China, India and Indonesia and he has built strong relationships across the globe. Financially, the organization is stronger today than it has ever been.

Under Bill's leadership, SSPC has grown tremendously as an organization and achieved many of the audacious goals set forth by the Board of Governors. We appreciate Bill's sincere dedication and arrival at work with the sunrise every day. Bill has always taken his role seriously, and in his own way, has had the ability to mix fun and humor into the workplace. The Board of Governors and the SSPC staff wish Bill much happiness and good health as he begins his journey into retirement along with his wife Diane, his children, grandchildren and his golf clubs. And speaking of golf clubs, many of us know of Bill's propensity for annual budget sandbagging, which carries over to the golf course, where Bill's competitive side continues to flourish. He never feels compelled to give a poor soul a few strokes and can't resist a smile when he takes their dollar after the match. Humor aside, loyalty, wit and perseverance are qualities inherent in Bill's achievements at SSPC and beyond.

As we now begin the search for a new executive director, the Board of Governors has secured Ross Recruiting to conduct the search effort. If you are interested in applying for the position, please contact Cathy Ross at cathy@rossrecruiting.com for more details.

THE SOCIETY FOR PROTECTIVE COATINGS
EXECUTIVE DIRECTOR, PITTSBURGH, PA

Work With Us

Founded in 1950, The Society for Protective Coatings (SSPC) is the premier non-profit association focused on the application and use of protective coatings for the preservation of infrastructure, industrial and marine assets. SSPC's mission is to advance the technology and promote the appropriate use of protective coatings as designated in our proprietary certification process and published standards. Our 11,000 individual and organizational members across the world rely on us for state-of-the-art training, education and certifications. Our standards are recognized and specified the world over.

The SSPC, located in the heart of the U.S. steel industry, Pittsburgh, Pennsylvania, offers competitive compensation, 401K, excellent benefits and a collaborative work environment. We have a dynamic and dedicated staff that are experts in their craft and committed to excellence and customer service. As a result, you will find a culture that supports and inspires growth and relevance in the protective coatings industry both in our workplace and beyond; domestically and globally.

Position Summary

The role of executive director is to provide strong leadership to our staff of 30 and effectively communicate our mission, programs and services throughout the industry, and continue to expand our reach globally. The executive director will be responsible for working with members, member organizations and stakeholders to develop and execute industry standards and policies that will provide value to our members while engaging new stakeholders and members to bring them into the organization. The successful candidate will be experienced in the cultural nuances of international travel and will know how to communicate the mission of the organization to a global audience.

Essential Functions

The executive director serves as our chief executive, formulating and executing policies as approved by the Board of Governors. The SSPC executive director provides strong leadership to the team of directors and staff by overseeing planning, programs and new product development. Highly effective external communication skills are necessary to gain support of industry leaders in the protective coatings industry to engender their support of SSPC programs. The protective coating industry is recognizing unprecedented growth. The role of the SSPC executive director in taking the society to the next level of success is critical. The Board of Governors is committed to hiring the individual who can demonstrate a track record of impeccable fiscal responsibility and unparalleled leadership qualities.

Responsibilities and Scope

- Coordinate the activities of the Board of Governors to ensure conformance with bylaws and legal statutes
- Develop policies, procedures, programs and ensure adequate resources to implement the objectives and achieve the overall goals of SSPC
- Maintain awareness of industry trends in technology, regulations and economic policies
- Represent SSPC at industry-related functions
- Maintain liaisons with other industry trade organizations
- Plan and execute communications to the general membership including publication editorials, newsletters and news releases
- Direct the planning of the annual meeting and conference with staff and committees
- Develop and recommend annual operating and capital budgets and, upon approval, operate within approved bud get parameters
- Provide internal controls that establish sound accounting policies that ensure proper accounting for the fiscal transactions of the organization while safeguarding the organization's assets
- Evaluate the effectiveness of SSPC programs in meeting the needs of its membership and provide for long-term planning to ensure future effectiveness
- Function ex officio as a non-voting member of the Board of Governors
- Work closely with SSPC counsel regarding potential legal issues that could impact the organization

Minimum Qualifications

- Bachelor's degree required; business-related field and advanced degree preferred
- Fifteen years of business or association-related expertise
- At least five years of management experience
- Demonstration of strong leadership skills and strategic vision
- Experience in international travel and accustomed to navigating a variety of cultures effectively
- Excellent oral and written communication skills
- Working knowledge of budgets, financial statements and management principles
- Ability to travel up to 40 percent
- Must be willing to relocate to Pittsburgh

Preferred Qualifications

- Familiarity with protective coatings or related industry experience
- Working knowledge of standards organizations such as ASTM, ISO, SSPC and NACE
- Ability to influence international growth

If you are interested in applying for this position, please forward your resume and cover letter to:

Cathy Ross
Ross Recruiting
cathy@rossrecruiting.com

ROSS | RECRUITING

The Buzz on PaintSquare.com

Most Popular Poll (Nov. 17 to 30)

Do you expect to still be in a coatings-related industry in five or so years?

Yes. I'm a happy lifer.	**55%**
I expect to retire in that time.	**18%**
Not sure; I'm open to changes.	**23%**
No way.	**4%**

Trevor Neale: Best business in the world! It's taken me to three continents and provided a great living. Born in 1934, and plan to keep going until I run out of surfaces to coat and the challenges each one presents!

William Pybus: Where else could you get paid to enjoy the fresh odor of paint fumes, the heat and cold cycles of Mother Nature, and those wonderful conversations with the American public being interrupted doing their very important routines, as well explaining to all personnel not to remove the lockouts or rope attachments very necessary to reach that oh-so-ever-fictional retirement age? Sure, why not! I've got nothing better to do! Now where did I put that Powerball ticket?

PSN TOP 10 (as of Dec. 5)

- **Painting JV Cleared; Suspension Lifted**
- **AkzoNobel Investigating Chicago Fraud**
- **Paint 'Geyser' Raises River Fear**
- **2nd Span Collapses at NC College**
- **Coal Ash Rule Goes to the Wire**
- **Paint Propels the Car of the Future**
- **Coating Makers Score Label Reprieve**
- **Coastal Wall Work Uncovers Shipwreck**
- **Massive Stage Awaits Nuclear Giant**
- **Safespan Awarded $5.25M in Patent Case**

Now Buzzing on PaintSquare . . .

"Bike Path Gets Artist's Touch," Nov. 21

Photo courtesy of Studio Roosegaarde.

In the Netherlands, thousands of stones topped with smart coatings are lighting up a new bike path designed to invoke Vincent Van Gogh's famous painting, "The Starry Night." The Van Gogh-Roosegaarde bicycle path, a permanent installation that opened Nov. 12, marks the start of the Van Gogh 2015 international theme year to commemorate the 125th anniversary of the artist's death. The project was developed by designer Dan Roosegaarde, creative director at Studio Roosegaard, and Heijmans, a civil engineering and infrastructure company.

MOST POPULAR QUIZ (as of Dec. 5)

The last solvent in a solvent blend to evaporate from an applied coating film is called what?

A. Retarder
B. Tail solvent
C. Finishing solvent
D. Flash-off solvent

Answer: B. Tail solvent. Solvents with higher boiling points evaporate more slowly than those with lower boiling points.

Results

Get the coatings industry buzz at paintsquare.com, or scan the QR code for instant access!

Problem Solving Forum

On Surface Prep Challenges, Time & Costs

A specification for a bridge to be built of high-performance weathering steel requires an SSPC-SP 10, a profile of 3 to 5 mils, and metallizing with a final DFT of 10 to 12 mils. What challenges, time and costs are associated with obtaining the profile?

William Feliciano
NYS Dept. of Transportation

Not to answer your question with a question, but is there a chance that a 3–5 mil profile is excessive for a 10–12 mil thermal spray coating? If you reference AWS C2.18 93, it specifies a 2–4 mil profile for TSC up to 12 mils thick. Beyond 12 mils, it recommends using a profile depth approximately one-third the TSC thickness. This may be a somewhat dated spec, but its technical recommendations appear sound. As important is the angularity of the profile. I advise caution, because many fabrication shops use a mix of steel shot and grit to reduce wear on their wheel blast machines. TSC coatings, because they depend on mechanical adhesion, require strict adherence to angularity of profile. If this is the case in your shop, you may have to consider blasting the steel manually with grit alone rather than a mix of grit and shot. Be aware that SSPC-CS 23.00 as well as AWS C2.18 require the use of bend plates to verify adhesion of whatever blasting procedure/materials you settle on. I would think that blasting new weathering steel would not be much different than normal, new carbon steel, since both have millscale, unless the weathering steel is of higher hardness.

Tom Schwerdt
Texas Department of Transportation

The answer to these salty areas may well be ASTM A1010 structural stainless steel. Yes, the plate cost is much higher than weathering steel, but the difference in fabricated cost is less shocking and the difference in actual installed cost isn't that bad when you look at the cost increase for the bridge as a whole.

Karen Fischer
Amstar of Western New York, Inc.
It escapes me why an owner in the snow belt states or near salt water areas would ever specify weathering steel. De-icing salts and salt water are detrimental to weathered steel. In our area, many of the owners have found that the bridge never stops rusting unless you apply a sealer immediately upon erection and every year or two, which defeats the purpose of the weathering steel (to reduce the cost associated with regular painting schedules). Once that salt gets into the profile, it is near close to impossible to "wash" it all out. But getting back to the original question, why would you metalize a weathered steel bridge if the weathered steel is supposed to be the solution to an issue? A profile of 3–5 mils can easily be accomplished with 40 grit but you are likely to achieve an SSPC-SP 5.

Lydia Frenzel
Advisory Council
Why are you coating weathering steel? Is the bridge to be constructed over salt water or marshy land, where weathering steel might not be the best metal for the project? If you blast to SSPC-SP 10 and then coat, are you getting any benefit from using weathering steel?

Have a coating problem you'd like help with? Submit your question to paintsquare.com/psf for publication consideration.

Problem Solving Forum questions and answers are published in *JPCL* and *PaintSquare News*. To subscribe, visit paintsquare.com/subscribe.

SSPC PROTECTIVE COATINGS SPECIALIST

Q&A with Rodger Hamrick

Reglas Painting Co., Inc.

By Charles Lange, *JPCL*

Rodger Hamrick is the operations manager at Reglas Painting Co., Inc., an SSPC-QP 1- and -QP 2-certified lead removal and coatings contracting company based in Baltimore, Md. In his current role, "I wear a few different hats," says Hamrick, serving as the company's project manager, quality control manager and safety director. He holds a Bachelor of Science degree in construction management, an Associate of Science degree in computer-aided design, and he is a graduate of the Williamson Free School of Mechanical Trades. His certifications include the SSPC PCS, Coatings Application Specialist (CAS) Level 2 and Quality Control Supervisor (QCS); NACE Coating Inspector Level 2; and Board of Certified Safety Professionals (BCSP) Safety Trained Supervisor.

JPCL: How did you get your start in the protective coatings industry?
RH: I was originally exposed to the industry through Williamson, which is a post-secondary trade school. I studied painting and coatings under the Paint and Coatings Technology Program for three years there, learning everything from protective coating theory to application. In the summers I worked for a commercial contractor, where I was able to put the book knowledge to the test. That's when I realized there was more to painting then just slapping on some color.

JPCL: Your company specializes in bridges and other steel structures. Can you talk briefly about the importance of working with governmental agencies like DOTs to make sure that this important infrastructure is receiving the maintenance required moving forward?
RH: As a contractor, it's important to have a well-established relationship with agencies like the DOT. For the most part all the state agencies that we work for do a good job of specifying the right cleanliness level and coating system that needs to be applied. Our typical spec for a bridge coating system is an SSPC-SP 10 Near White finish, and a three-coat system consisting of a zinc primer coat, epoxy mid-coat and a urethane finish coat. As a contractor, we can only do the job as required by the contract. The agencies provide a spec that's both cost-effective and sustainable for the state; it's our job to do give them a quality coating system that will last.

JPCL: You have been a certified PCS for about a year. How has the PCS certification helped you in the work that you did over this past year? Would you recommend pursuing the PCS and other industry certifications to your colleagues?
RH: I would say having the PCS certification has given me confidence in managing our company's coating contracts, and has helped me gain knowledge in the quality control management side of the business. I would encourage anyone to take not just the PCS exam, but any exam or class they may have the opportunity to take.

JPCL: What do you enjoy most about the work you do?
RH: Bridges. I love being up on the bridges. There is something about being able to drive underneath or over a bridge that you worked on and say, "I did that!"

JPCL: What has been the highlight or proudest moment of your career thus far? Is there a particular project that you worked on in the past that stands out to you?
RH: I don't know that I have a proudest moment of my career, yet. I am considered new to most industry experts and I have a lot to learn and gain. There is one particular bridge project that stands out, on the

Chesapeake Bay Bridge. It was my first bridge project; I worked on it as an apprentice. Our transportation to the bridge every morning was a tugboat ride to the center pier, followed by a 185-foot climb to the top. I'll never forget being that high up in the air on a cage link fence. It was quite the experience.

JPCL: Are there any noteworthy projects that you're working on now or that are coming up in the future? Or is there anything in development with your company or in the industry in general that you're excited about?
RH: We were recently awarded the cleaning and painting of the I-695 bridge over Curtis Creek. It's the largest contract our company has taken on. We are really excited about the opportunity to work with the MDTA again.

JPCL: What's the best piece of advice you've received over the course of your life and career?
RH: I can remember the first time my father said to me, "Never wait on anyone. If you're going to do something, do it." That has stuck with me over the years, both in business and in everyday life.

JPCL: What are some of your interests outside of work? How do you like to spend your free time?
RH: Most of my time outside of work is spent with my wife and our son, who is a little over a year old. He's just beginning to walk, so he's keeping us pretty tied up at the moment. If I am not spending time with the family you can find me at the beach surfing or up in the mountains snowboarding. I have a passion for the outdoors; it's a way for me to escape the hustle and bustle of the city.

Hamrick with his wife, Kim, and their one-year-old son, Brayden.

Infrared Spectroscopy

By Dwight G. Weldon, Weldon Laboratories, Inc.

Spectroscopy can be broadly defined as the study of the interaction of light with matter. In some cases the sample is absorbing light, while in other cases it is emitting light. Infrared spectroscopy, in particular, is extremely useful in investigating a very wide range of paint failures.

Associating a specific date with the beginning of spectroscopy is difficult, since spectroscopic effects have been observed for a very long time, even if there was no understanding of what was causing them. Undoubtedly, people were aware centuries ago, that when introduced into a flame, different materials resulted in different colors. Copper "burns" with a bluish-green color, sodium with a yellow color and potassium with a violet color. In the mid-19th century, Bunsen and Kirchhoff were significant in establishing the scientific basis of these observations, thus introducing flame photometry – a form of atomic spectroscopy – to the world of analytical chemistry.

What we call visible light is a form of electromagnetic radiation which occupies just a small sliver of the entire electromagnetic spectrum. The electromagnetic spectrum includes visible light, ultraviolet light, microwave radiation, X-rays and infrared radiation. The study of how infrared radiation interacts with matter is termed infrared spectroscopy and the first commercially available infrared spectrometers were introduced in the 1940s.

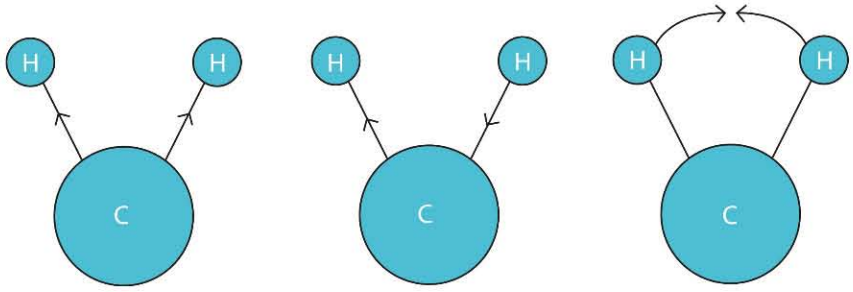


Fig. 1: Three of the fundamental vibrations of the CH_2 group. The vibration on the left is a symmetric stretching vibration, the one in the middle is an asymmetric vibration and the one on the right is a bending vibration. All figures courtesy of the author.

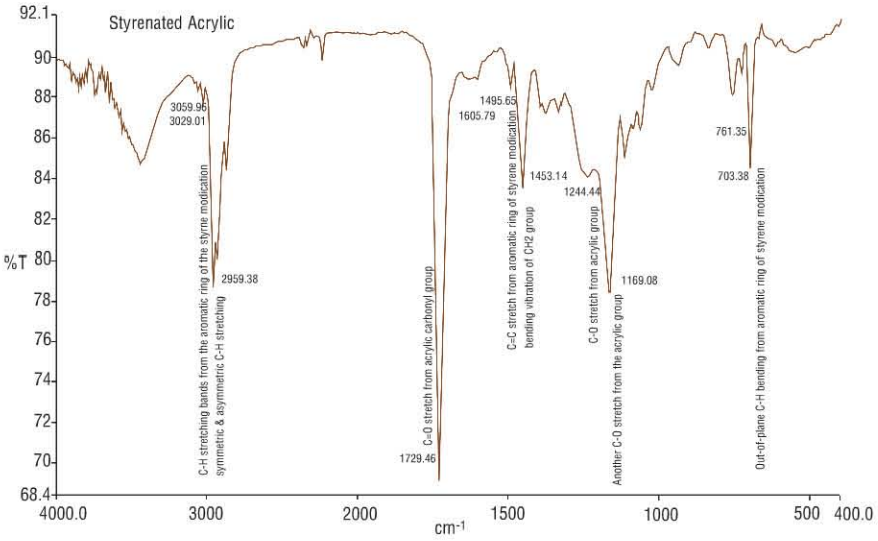


Fig. 2: The infrared spectrum of a styrenated acrylic. The bottom (x-axis) is frequency (cm^{-1}), while the vertical (y-axis) is percentage of transmittance. Where the sample absorbs infrared radiation (such as the C-H stretching band near 2,959 cm^{-1}), there is a decrease in the amount of radiation being transmitted through the sample, resulting in a peak pointing in the negative direction.

Fig. 3: Pictured is a Fourier transform infrared spectrometer, displaying an attenuated total reflectance (ATR) accessory mounted in the sample compartment. ATR allows spectra to be obtained from surfaces of very small samples.

How it Works

The underlying chemical and physical principles on which infrared spectroscopy is based are the concepts that molecules consist of various atoms joined to one another by chemical bonds, and that these atoms vibrate with respect to one another, at various frequencies, somewhat like balls connected with springs. Imagine ten or twenty balls of different sizes and weights suspended from the ceiling and connected to one another by springs of varying lengths and degrees of stiffness. If this contraption were to be wacked with a stick it would appear to shake and vibrate in a wildly haphazard fashion. But, if we had a strobe light that allowed us to vary the frequency of the pulses of light, we would find that at certain frequencies some of the balls would appear frozen in space.

We would discover that the vibrations are not random at all, but actually occur at certain constant frequencies, depending largely on the types of balls and the types of springs connecting them. With respect to molecules, the frequency of a particular vibration depends on the types of atoms bonded to one another, the types of bonds holding them together, and to a lesser extent, the type and number of neighboring atoms.

Take, for example, the CH_2 group, one of the simplest fragments of most organic molecules. There are several ways in which these atoms can vibrate with respect to one another (Fig. 1, p. 17). If you envision the central carbon atom being stationary, the

two hydrogen atoms can stretch back and forth in two different fashions – either symmetrically (both hydrogens move in and out together) or asymmetrically (one hydrogen is moving out while the other is moving in). The symmetric stretching mode, or vibration, occurs at a frequency of about 2,850 cm^{-1} (reciprocal centimeters, also called wavenumbers), while the asymmetric vibration occurs at a frequency of about 2,925 cm^{-1}. A third way in which the CH_2 group can vibrate is by a bending vibration of the two hydrogen atoms. This vibration occurs near about 1,470 cm^{1}.

Other groups of atoms vibrate at different frequencies, ranging from about 4,000 to 400 cm^{-1}, which falls at about the middle of the infrared portion of the electromagnetic spectrum. Table 1 (p. 22) shows some of the more common structural groups and their vibrational frequencies. If you shine a beam of infrared radiation through a sample, or bounce it off of a sample, the sample can absorb some of that radiation, at the exact frequencies at which it is vibrating. An infrared spectrometer, in effect, scans a sample with a beam of infrared light and measures the frequencies at which the light is absorbed. The resultant output is termed an infrared spectrum and is essentially a graph of the frequency of the infrared light versus how much of it is absorbed by (or more commonly, transmitted through) the sample. As you might imagine, such a spectrum can provide a wealth of information as to the chemical composition of the sample. Figure 2 (p. 17) shows the infrared spectrum of a styrene-modified acrylic with some of the bands identified as to the structural groups responsible for them.

The older infrared spectrometers had a light source in them and used either a prism or a diffraction grating to actually scan the sample with one frequency of infrared light at a time. It typically took 15 to 20 minutes to acquire a spectrum and the sensitivity

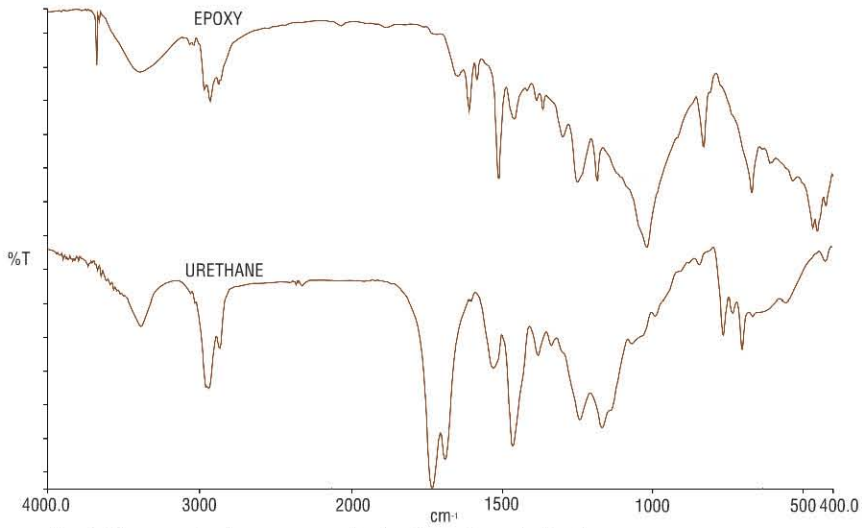


Fig. 4: These spectra show an epoxy (top) and a urethane (bottom).

was only modest. The newer Fourier transform type of instruments which use a complex mathematical principle to speed up obtaining the spectra, gained popularity in the 1980s and are much faster and more sensitive (Fig. 3, p. 18). A modern Fourier transform infrared spectrometer can obtain a high-quality spectrum in three or four seconds with much greater sensitivity than a prism or grating instrument.

Failure Analysis Application

Infrared spectroscopy is a powerful tool in the field of failure analysis. Some of its uses include the following.

- Generic identification of coatings
- Determination as to whether the specified coating was used
- Detection of organic contaminates such as grease and oils
- Detection of blushes and exudates

- Determination of the mix ratio of certain types of two-component coatings
- Detection of coating degradation
- Determination of the degree of cure of certain coating types, such as urethanes and inorganic zinc-rich primers

Figure 4 shows infrared spectra of both an epoxy and a urethane. It is obvious, even without knowing what chemical structure or fragment each individual band corresponds to, that the two coatings are different. Figure 5 shows spectra of two urethanes, each manufactured by a different supplier. While the spectra are similar and clearly typical of urethanes, it is apparent that the two "fingerprints" do not match one another. There are obvious differences in the 1,100 to 1,250 cm^{-1} region, and in the 800 to 400 cm^{-1} region. Figure 6 (p. 22) is a spectrum obtained from the backside of a coating which disbonded from

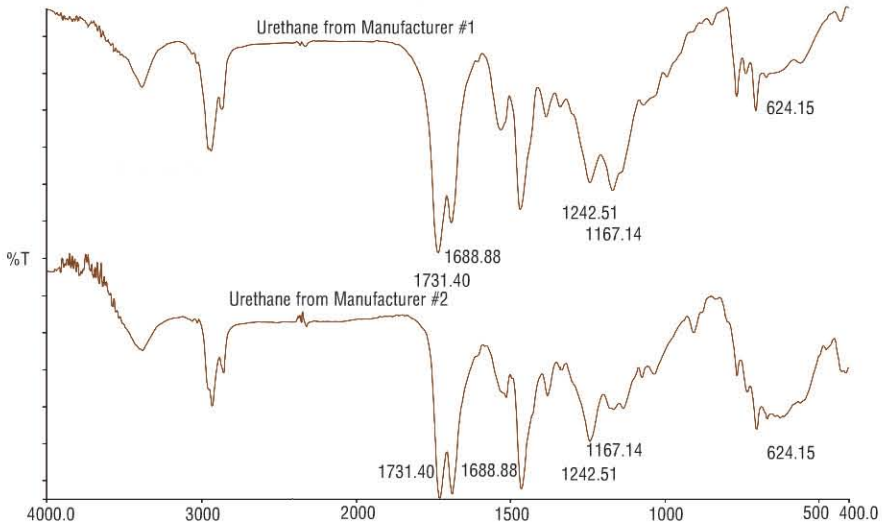


Fig: 5: These spectra show two urethanes produced by different suppliers. Although very similar, the spectra are clearly not identical.

Table 1: Common Structural Groups and their Vibrational Frequencies

Structural Group	Compound Name	Vibrational Frequency, cm^{-1}
C-H	Alkanes (saturated hydrocarbons)	2,850-2,950, 1,350-1,470
C---H	Aromatic rings (carbon-hydrogen vibration)	3,000-3,100, 670-870
C=C	Aromatic rings (carbon-carbon vibration)	1,480-1,610
$Si-CH_3$	Methyl silicone	1,250-1,270
C-O	Ethers, alcohols, carboxylic acids, esters	1,070-1,300
C=O	Aldehydes, ketones, carboxylic acids, esters	1,680-1,770
N-H	Amines	3,300-3,500

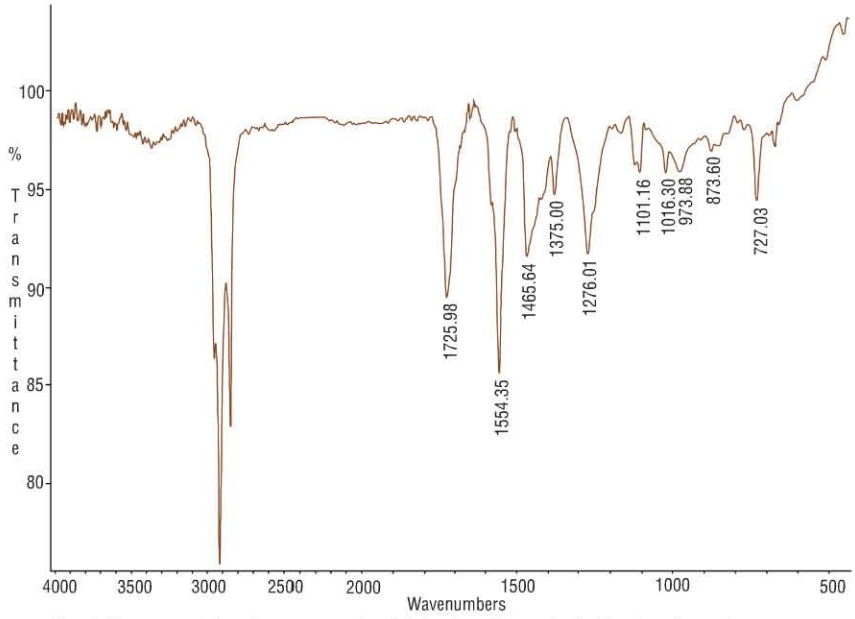


Fig. 6: Spectrum of drawing compound or lubricating oil from backside of peeling paint.

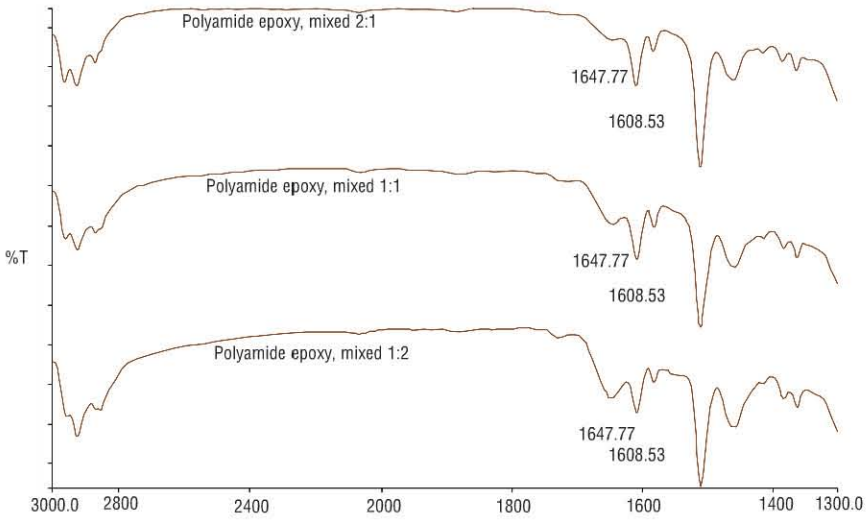


Fig. 7: These spectra show a polyamide epoxy at three different mix ratios. Note the variation in the relative intensity of the amide band near 1,647 cm^{-1} compared to the epoxy band near 1,608 cm^{-1} as a function of mix ratio.

extruded steel bar stock, with bands characteristic of certain lubricating or drawing oils which were not removed from the steel prior to painting.

In some cases, infrared spectroscopy can be used to determine if a failing coating was applied at the correct mix ratio. Figure 7 shows spectra of a polyamide epoxy which was applied at three different mix ratios: 1-to-1 (the correct ratio of Part A epoxy to Part B hardener), 2-to-1, and 1-to-2. When examining the spectra, it can be seen that the intensity of the polyamide band near 1,647 cm^{-1} increases with respect to the epoxy band near 1,608 cm^{-1}, as more of the polyamide hardener component is used. Therefore, the relative intensity of these two bands can be used to determine the mix ratio of the coating.

The Limitations

As useful as infrared spectroscopy is in failure analysis, it is not without its limitations. Some of these are related to sampling issues, and some are more fundamental in nature.

With modern instrumentation, it does not take a lot of sample to get a good infrared spectrum. A "pinch of salt" is more than enough to obtain a spectrum via the traditional pellet technique (where the sample is physically ground in a carrier such as potassium bromide powder and then formed into a pellet under high pressure). A 1-mm-diameter fragment of a paint chip is large enough to obtain a spectrum using an attenuated total reflectance (ATR) attachment, which more or less bounces a beam of infrared radiation off of the surface of the sample. However, sometimes the analyst is simply not provided with good samples. Small fragments of coating are received from a wastewater treatment plant and are covered with scum, or possibly overspray from a different paint. Tiny, brittle pieces of paint are received which consist of three or more coats. Chips are cut out from drywall and are covered with white gypsum dust

(invariably, in this case, the paint is also white). A red primer on the back of a paint chip is only 1 mil thick and covered with red rust and 5 mils of a hard topcoat. A patient, experienced analyst with a good microscope, a sharp knife and a steady hand can circumvent many of these problems, but not all of them.

One of the more fundamental limitations of infrared spectroscopy is the fact that an infrared spectrum is really a composite of the "fingerprints" of all of the ingredients making up the coating. This can be both good (a lot of information can be obtained from the spectrum) and bad (the fingerprints can overlap and interfere with one another). Sometimes if a paint sample has a very high pigment loading (amount of pigment) it is not possible to determine its generic identity because the strong, broad pigment bands obscure the weak resin bands.

There are many ingredients in paint and they all contribute to its infrared spectrum, therefore, computerized library searches are not all that useful. Many computerized libraries of infrared spectra exist; however, they are mostly comprised of spectra of individual resins, pigments, additives and other raw materials. While they can still be useful, caution is advised to avoid blindly accepting the results of such a search.

While there are exceptions, infrared spectroscopy is primarily a technique for identifying and studying organic materials. Organic compounds and resins have numerous vibrations in the mid-wavelength infrared (mid-IR) region, and these vibrations tend to be reasonably sharp and well-defined. This is often not the case for inorganic materials. While some pigments and other inorganic materials can be identified by infrared spectroscopy, many of them have broad, overlapping bands which makes their confirmation difficult. Furthermore, some inorganic materials of interest in failure analysis, such as sodium chloride (did they paint over salt?) do not have a useful infrared spectrum.

Solvents produce some of the cleanest and easiest to discern of infrared spectra, with numerous strong, sharp peaks well resolved from one another. However, infrared spectroscopy is not useful in detecting residual solvents in paint chips, primarily because the amount of such solvent is very low, and also because resin and pigment bands would overlap many of the solvent bands.

As we have seen in this series, each analytical tool has its strengths and weaknesses. Infrared spectroscopy, although perhaps the most useful tool in failure analysis, is no exception.

JPCL

Safe Use of Chemical Strippers

Any surface preparation method involves hazards. Some techniques, such as hand or power tool cleaning, waterjetting and abrasive blasting, present both physical and chemical hazards. Chemical stripping is one surface preparation technique with hazards related mostly to the chemicals involved, not to the physical hazards.

The hazards result from either the active ingredients in the chemical stripper itself or the material being removed. This Applicator Training Bulletin will examine the hazards associated with chemical stripping and the measures used to protect workers.

It cannot be overly stressed that chemical stripper formulations are proprietary. They may contain a mixture of materials. Always check the safety data sheet (SDS) for any chemical stripping product used, and protect workers accordingly.

Stripper Types

There are different generic types of chemical strippers on the market, including caustics, solvent-based and waterborne macro-emulsions. Caustics are based on chemicals such as sodium, calcium or magnesium hydroxides. Solvent-based strippers contain solvents such as methylene chloride, methyl ethyl ketone (MEK), toluene, N-methylpyrrolidone (NMP) or dibasic ester (DBE). The macro-emulsions contain hydroxycarboxylic acid peroxide. Each of these chemicals presents its own health hazards.

Health Hazards

Stripper formulations will contain only a percentage of the active ingredient, but the health hazards are the same. The difference is that with the fully formulated stripper, exposure will be to lower concentrations. The health hazards have been updated with new information from the U.S. Environmental Protection Agency (EPA).

Caustics

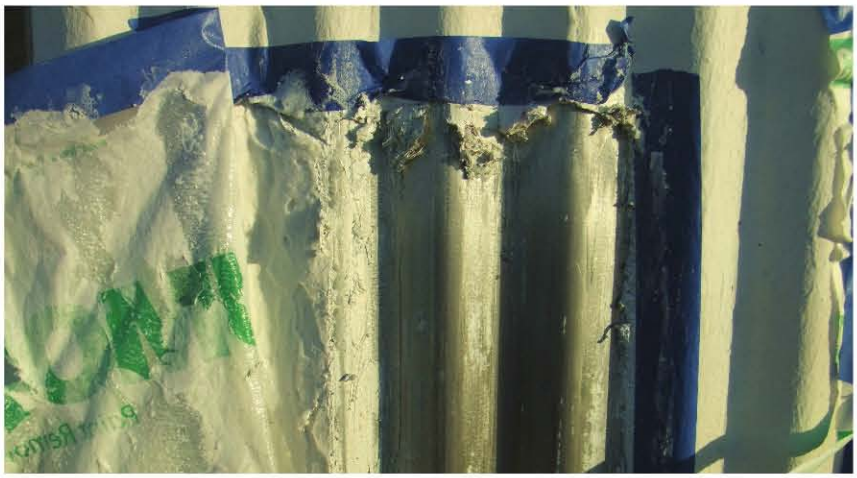
Caustic materials such as sodium, calcium and magnesium hydroxides are corrosive. Sodium hydroxide, also known as lye or caustic soda, is found in products such as household drain cleaners. Caustics are highly alkaline. They will attack most body tissues including the skin, eyes and respiratory system.

Contact with the skin will cause burns and, frequently, deep ulcerations resulting in scars if the caustic is at high concentration and left on the skin. Contact with the eyes will cause irritation. With greater exposures, caustics can cause burns that may result in permanent vision damage or even blindness.

Breathing caustic fumes can cause a range of problems from mild irritation to serious damage of the upper respiratory tract. The type and degree of damage depend on the severity of exposure. Symptoms may include sneezing, sore throat or runny nose.

Worker protection is essential when using chemical strippers to remove coatings. Photos courtesy of Dumond Chemicals, Inc.

Editor's Note: This Applicator Training Bulletin was originally written by Lloyd Smith, Ph.D., then of Corrosion Control Consultants and Labs, Inc., and was published in the August 2002 JPCL. *It has been updated for this issue by the* JPCL *staff.*



Chemical strippers are an effective way to make coatings removal easier for contractors.

Caustics are highly toxic if swallowed. They can cause severe burns of the mouth, throat and stomach. Severe scarring can occur, and death may result. Symptoms include bleeding, vomiting, diarrhea or a drop in blood pressure. The damage may not appear until days after exposure.

Caustics can be recognized by their slippery feel. Soap, for example, is mildly caustic and mildly slippery. Caustics must be removed from the skin or eyes immediately. First aid treatment consists of flushing with water for at least 15 minutes. Do not induce vomiting if swallowed, but give large quantities of water or milk. If you give first aid to someone burned by caustics, always get the victim to a physician for further treatment.

Solvent-Based Strippers

The health hazards of solvent-based strippers are associated with the solvents in the formulation. Solvents can dry out the skin, causing irritation, burns, cracking, fissures or ulcers. They remove protective oils from the skin, increasing the risk of infection. Solvents absorbed through the skin get into the bloodstream where they concentrate in organs such as the brain, liver and kidneys. Breathing solvent fumes can irritate the nose, throat and lung passages. The solvent can then be absorbed into the body through the lungs. The stripper may give off solvent vapors that are irritating to the eyes.

Methylene chloride, or sometimes called dichloromethane (DCM), is a very effective paint stripper but also presents a significant health hazard. It is suspected of causing cancer in humans, so its use is banned in many places. It is quite volatile and easily inhaled. It has a strong narcotic effect with symptoms of light-headedness, fatigue, nausea and headache.

Methylene chloride causes carbon monoxide to form in the blood, which affects the performance of the heart and the lungs. Prolonged, high exposures can cause liver and kidney damage. In 2012, the California Department of Public Health's Occupational Health Branch issued an alert warning of the risks of using DCM after two workers were killed by toxic solvent vapors inside of a tank. The EPA has also recently carried out risk assessments on these chemicals, and the results of the final assessments could bring the Agency closer to tightening regulations.

Highly volatile solvents in strippers such as toluene and MEK can irritate the skin, nose, eyes and throat. Toluene can cause an unusual skin sensation that feels like pins and needles. Headache, fatigue and drowsiness are common symptoms of inhaling too much of this vapor.

NMP, a high-boiling solvent, is quickly absorbed though the skin and is capable of transporting other dissolved toxins into the body. The EPA rates it a significant hazard, and users should take measures to reduce exposure. DBE may aggravate blurry vision caused by a pre-existing eye disease.

These are health hazards of just some of the materials that are used in solvent-containing formulations. Consult the SDS for the specific hazards of the material being used. Also, remember that solvents are flammable materials. Do not smoke or use these materials around open flames or non-explosion-proof electrical devices.

First aid for exposure to solvent-based strippers is to move the person to fresh air if they have been inhaling the stripper. If it gets on the body, flush the skin with plenty of soap and water for at least 15 minutes and remove contaminated clothing. Use only water for flushing if the stripper gets in the eyes. If ingested, do not induce vomiting. Give large quantities of water if the person is conscious and not vomiting. Get medical attention fast.

The strippers based on hydroxycarboxylic acid peroxide are reported to be non-toxic, with very little in the way of adverse health effects.

Macro-Emulsions

The active ingredient in macro-emulsion strippers has no known health effects.

But, even though the stripper formulation is waterborne, it does contain some organic solvents. Exposure to these solvents can result in irritation to the eyes, skin, gastrointestinal tract and respiratory system. Organic solvents can also be absorbed into the body like the other solvents mentioned above.

Exposure and Explosion Hazard

One should always protect the skin and eyes when using chemical strippers. But is respiratory protection always needed? This question is not easily answered, as it depends upon work conditions. SDSs will contain information on the personal exposure limit (PEL), threshold limit value (TLV) and short-term exposure limit (STEL) for the constituents in the stripper. The PEL is the maximum allowable exposure to airborne constituents in strippers based on a worker's exposure during an eight-hour workday. The TLV represents the maximum allowable concentration of an airborne substance that will have no adverse health effects for nearly all workers who are exposed daily (eight hours) for a normal work week (i.e., 40 hours). PELs and TLVs protect a worker from long-term, low-level exposures known as chronic exposures. Some chemicals present health hazards if a worker is exposed to a larger dose in a short-term exposure. This is referred to as an acute exposure. If the chemical constituent has such health effects, the SDS will give the STEL, which is the maximum concentration to which workers may be exposed continuously for a short period of time — usually 15 minutes.

Exposures to airborne chemicals are greatly affected by site conditions when using chemical strippers. The only method to determine a worker's exposure is by performing personal air monitoring. A worker's exposure will be affected by such factors as local conditions, i.e., wind, their position in relation to the work, and the actual methods being used to apply the stripper (spray vs. brush/roller/trowel) or remove the stripper (dry vs. wet methods).

Another concern is fire and explosions. This is limited to solvent-based strippers. The SDS will list the lower explosive limit (LEL) and upper explosive limit (UEL). The UEL is the lowest concentration that will support combustion if a spark or heat source is present. The LEL is the maximum concentration that will support combustion, i.e., the air is too rich in fuel (deficient in oxygen) to burn. All solvent vapors are heavier than air, so concentrations will build up at the lowest level in the work area.

Personal Protective Equipment

Always consult the SDS before using a chemical stripper to determine the proper personal protective equipment (PPE). The discussion above contained general information on the health hazards of the major generic types of chemical strippers, but a stripper formulation may include a combination of materials (i.e., both caustics and solvents).

The PPE needed will include protection for the skin, hands, head, face, eyes, feet and, possibly, lungs. It is important that the stripper does not come in contact with the body. Protective coveralls and face protec-

tion should be worn. Preferably, they should be impervious to the chemicals in the stripper. Cotton coveralls may be sufficient, provided they are removed and replaced if they become soiled from the stripper. Protective creams should also be used on exposed skin.

Hands must be protected with chemical-resistant gloves. For caustic strippers, gloves made of natural rubber, neoprene, Buna-N (a nitrile elastomer) and butyl rubber provide the best protection. The best gloves for solvent-based strippers depend on the solvent or solvent mixture. Butyl rubber or nitrile rubber gloves are the types most often recommended. A glove supplier is the best source of information for proper glove selection once the active ingredients in the stripper are known.

Eye protection is very important. Chemical goggles, face shields or safety glasses with side shields must be worn.

The need for respiratory protection depends on job conditions. Caustic strippers generally do not require respiratory protection because the active chemical is not easily vaporized. But if the stripper is being sprayed on the surface, it may be possible to breathe in the tiny droplets of stripper. A particulate filter should be used on cartridge-type respirators. Solvent-based strippers present more of a respiratory hazard, especially when working in spaces with limited air flow. Strippers made from lower-boiling solvents should be applied with a respirator whether the project is indoors or outdoors. A solvent-vapor filter should be used on cartridge-type respirators.

PPE should also be worn when removing the stripper. Compared to the respiratory risk when applying the stripper, the risk is diminished during its removal. This is because some of the

solvents will evaporate while the stripper is working on the surface and will be dispersed in the air. When working outdoors, the wind will blow away the solvents, but they may still be present in the work area when using the stripper in contained spaces such as indoors or inside tanks.

Always follow good hygiene practices when using chemical strippers, during application and removal. Wash your hands and face before eating, drinking or smoking.

Related Hazards When Using Chemical Strippers

The stripper material may not be the only hazard associated with the use of chemical strippers. A worker may also be exposed to other hazardous materials in the paint being removed. The most common exposure is lead from lead-containing paints. It happens during stripper removal and not stripper application. Workers must be properly monitored to determine their exposure during the removal.

In addition to the lead content and the condition of the paint, the actual removal method will also influence worker exposure. Wet methods and vacuum methods will keep down dust, thus lowering exposure, but an ingestion hazard will still exist if good personal hygiene practices are not followed and any of the removed paint and stripper are on the worker.

Environmental Exposure

The active ingredients in chemical strippers can also present environmental hazards. Caustic strippers are highly alkaline. The stripper itself and the waste debris may be classified as a corrosive material. Solvent-based strippers generally do not contain specific constituents that are regulated under hazardous waste regulations, but it may be an ignitable material. Solvents can get into the ground water if the stripper or debris comes in contact with the ground. The debris and waste from using any type of chemical stripper must be contained and collected for proper disposal.

Constituents in the debris may also require special waste handling. For example, lead can become mobile if it is removed with caustic strippers. Lead is soluble in alkalis, so removing lead-based paints may result in the debris being classified as a hazardous waste. Lead waste from solvent-based strippers may also be classified as hazardous. In the U.S., the contractor is responsible for determining the waste's status. If it is hazardous, the contractor must follow U.S. regulations for handling and disposal of the waste. Always test and dispose of wastes from chemical stripping in accordance with applicable regulations.

Summary

The safe use of chemical strippers is needed to protect workers, the public and the environment. Chemical strippers may present a health hazard to workers using them. Wear proper personal protective equipment to keep the material off of your skin and out of your eyes. Formulations with toxic solvents will also require respiratory protection. The constituents in chemical strippers or the debris from using them also can be environmental hazards. Contain, collect and dispose of the debris in accordance with applicable regulations.

JPCL

Achieving Efficiencies with Coatings and Linings Work in Gulf Coast Environments

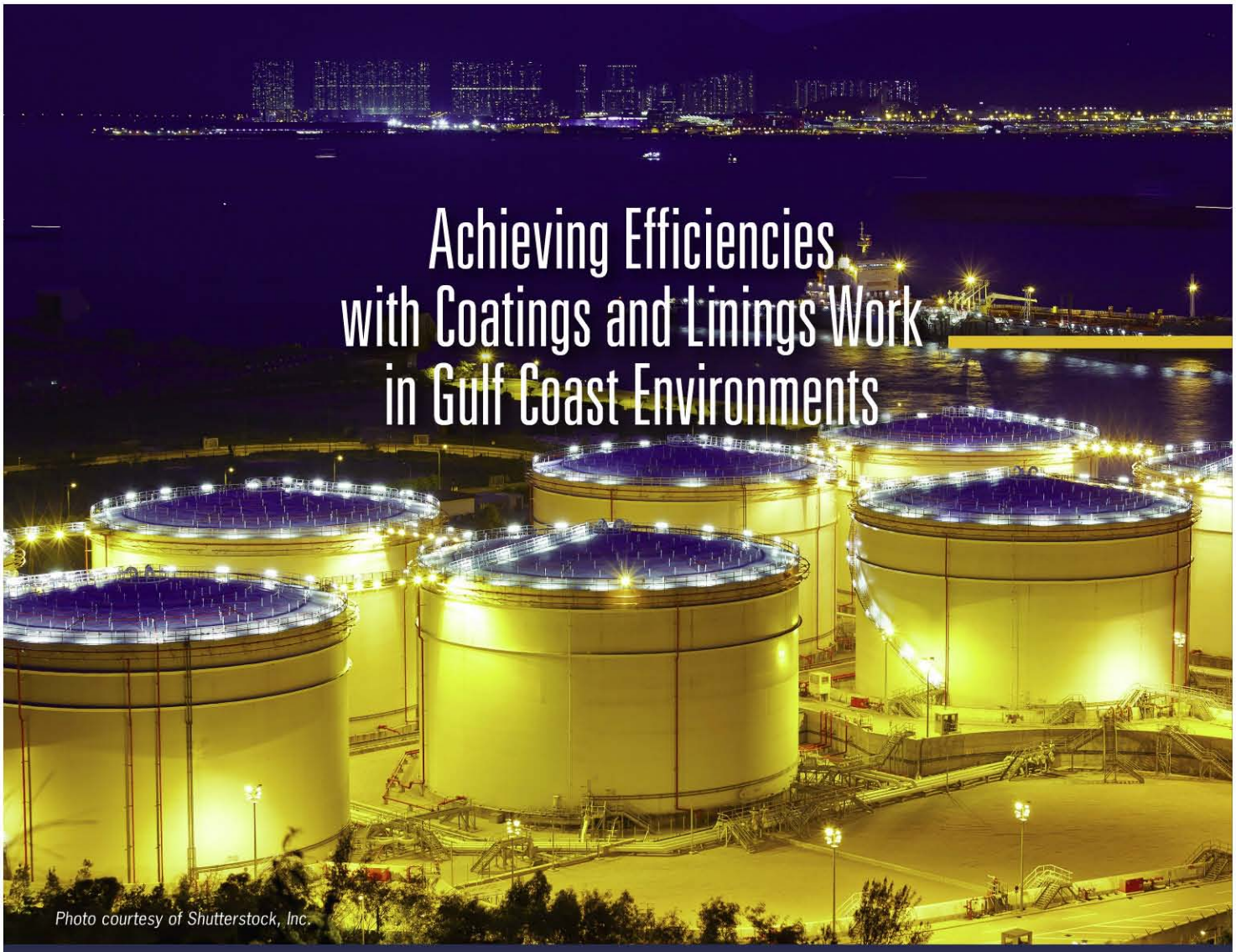


Photo courtesy of Shutterstock, Inc.

In contrast to inland environments, developing scopes of work for coating and lining storage tanks at oil and gas terminals on the U.S. Gulf Coast requires attention to the challenges of frequent rain, high heat and high humidity. The presence of pervasive moisture and heat calls for the availability of expertise when selecting the appropriate products to keep the project on track and within budget, and most importantly, to provide outstanding corrosion protection to critical plant assets.

This article will discuss the latest coating technologies for protecting all parts of petrochemical storage tanks situated in these coastal settings. We will examine: 1) a fast return to service (RTS) tank lining; 2) a new approach for protecting a tank's floating roof from ponding water; 3) a high-throughput polyaspartic urethane coating for atmospheric exposures; and 4) spray-applied thermal insulation as a permanent solution to the corrosion that occurs under standard insulation and cladding.

Internal Linings

From a macro viewpoint, standard-cure tank lining materials are a sound choice for protecting the internal floors and shell walls of most tanks in immersion service. These materials are easy to apply, cure to service in approximately five to seven days and generally perform well. However, in certain instances, putting tanks back into service the same day or overnight makes economic sense, and coastal environments can present such a scenario.

In Gulf Coast settings, dehumidification equipment and, in winter, heating equipment, must be supplied by the contractor to maintain required environmental parameters during the application process. Newer lining materials that cure in less than 24 hours can significantly reduce the costs of renting this equipment over the course of a project, and positively influence inspection time frames as well as the overall project schedule, while still maintaining a very high level of corrosion protection.

Fast RTS tank linings can handle a broad spectrum of cargos within the petrochemical segment including ambient temperature crude oil, gasoline, jet fuel, diesel fuel, kerosene and ethanol. These linings are most commonly medium-film materials (20 to 60 mils DFT) available in amine, phenolic and novolac resins. The resins are sometimes combined with micaceous iron oxide and/or glass flake/ceramic beads in order to enhance corrosion protection.

Fast RTS tank lining materials, many of which are self-priming, are applied with plural

By Ron Knecht, Regional Market Segment Director,
Oil & Gas, North America, The Sherwin-Williams Company

component spray equipment, utilizing two proportioned pumps (standard-cure materials use only one), heated hoppers and spray lines, and a mixing manifold setup.

Utilizing plural component equipment and applying the lining in only one coat minimizes the time, expense and environmental disposal cost created with the multiple equipment solvent flushings necessary with conventional cure systems. While this equipment is becoming more common in contractor service offerings, it does require an onsite foreman and crew trained in the distinctive application techniques involved.

A separate issue is the condition of the tank bottoms, i.e., whether the substrates are heavily pitted or new. It is important to note that in hot weather (above 90 F), the substantially shorter dry times of fast RTS materials must be factored in, in order to allow open time for the product to flow into and fill all pitted areas without producing excessive holidays and discontinuities.

Ultimately, the expense of heat and dehumidification is making owners receptive to the idea of fast RTS tank lining materials. It can be a game-changer option for owners accustomed to standard-cure materials that may require weeks to put tanks into service, and it reduces the cost of onsite inspectors who will be able to oversee repairs and final inspections within a much shorter time frame.

External Floating Roofs

Because of its attributes, the fast RTS tank lining system is increasingly being employed to prolong the service life of a tank's external floating roof. External floating roof storage tanks are utilized at terminals and refineries to store petroleum products such as crude oil and condensate. The welded carbon steel roof is designed so that the roof floats on the commodity and rises and falls based on the level of the liquid in the tank. Thus the vapor space is minimized, reducing the evaporative and volatile emissions into the atmosphere.

In the Gulf Coast region, rainwater will collect and pond in the low areas of the roof. When combined with the fallout from the adjacent refinery or chemical processing facility, and exposure to UV rays, a severe corrosive condition is activated.

Pictured is the newly finished interior of a crude oil storage tank where a routine inspection revealed a significantly degraded floor. The owner did not have time to wait for standard linings to cure, so a fast return to service lining was specified. Photo courtesy of Sherwin-Williams.

In traditional external floating roof new construction and maintenance, a thin-film two-coat system of an immersion-grade epoxy has been the standard in the oil and gas industry. The coating is applied at 5 to 6 mils DFT per coat with a total of 10 to 12 mils DFT. These systems are normally applied over multiple days and project schedules are often impacted by the fast-developing rain prevalent on the Gulf Coast.

However, nowadays owners are seeking solutions to achieve a 20-year service life for their external floating roof coatings. One option is to improve the coating system and the barrier protection by increasing the DFT to 20 mils with a medium-film coating system.

Adding additional DFT brings with it extra considerations. The performance of the coating system at an elevated temperature range cannot be compromised in any way, and the heat of the commodity can raise the floating roof temperature to as much as 130 to 140 F. Therefore, the coating system will require application capability at this temperature.

In addition to ensuring the suitability of applying the product on a hot steel substrate intended for ponding water service, specification considerations include application conditions and the flexibility of the product, as well as the need to address coating edge retention on the weld seams to avoid premature corrosion, ensuring the single coat will provide the same degree of coverage as it would on the flat surfaces.

It should also be noted that because it will take several days for the entire roof to be blast cleaned and fully primed, the substrate must be protected for the duration of the project as work is completed each day. To preserve the blast-cleaned substrate over the course of those days, a fast-drying epoxy primer or organic zinc-rich epoxy primer is applied at 2 to 2.5 mils DFT.

A fast-cure 100% volume solids edge retentive epoxy applied with plural component spray equipment is utilized as the finish coat. Also required is a stripe coat of the finish coat on the weld seams and edges prior to applying the finish coat. The fast RTS coating can be exposed to foot traffic in as little as one hour and cure-to-service is eight to 24 hours. This condensed curing schedule versus the conventional multi-coat/multi-day system significantly diminishes the risk of weather-induced project delays. As with the interior lining application, the fast dry times allow for expediting the holiday inspection procedure.

Flexibility is also a key criterion for the floating roof coating system. The steel plates on a floating roof will exhibit movement and the coating system must have enough inherent elongation properties to prevent cracking and premature coating failure, particularly at the increased 20 mil DFT.

After the final application, the coating system should be inspected for holidays and properly repaired. The 100% volume solids epoxy finish coats for touching up holidays can be supplied in a brush grade version or are available in plural component cartridges.

External Cone Roof/Shell System

The qualifications for coating systems for a tank's external shell and cone roof in a Gulf Coast environment are also in a state of evolution. The industry standard for dealing with the high humidity, salt spray and rain of these settings has been the three-coat zinc/epoxy/urethane system. However, over the past few years new materials have been developed that are extremely moisture tolerant, provide quick dry-to-handle times and offer superior corrosion protection.

Polyaspartic urethane resin technology provides a coating with the long-term corrosion resistance and exterior durability of a conventional urethane finish coat with dry-to-handle times the market hasn't previously seen. These next generation coatings are capable of application to 9 mils DFT in a single coat, and cure to be rain resistant, even in high humidity, in as little as one hour.

For light to moderately corrosive environments, these coatings are available as single-coat direct-to-metal (DTM) one-coat formulations. In the highly corrosive Gulf Coast environment, they may be applied in one coat over either an organic or inorganic zinc primer after abrasive blasting to provide the total system thickness and performance previously only obtainable by installing the standard premium three-coat zinc/epoxy/urethane system.

Elimination of one coat of the conventional system potentially removes several days and significant labor cost from the painting schedule, and the fast-cure properties of the polyaspartic urethanes include early moisture resistance, greatly diminishing the risk of rain or fog damaging the freshly painted finish coat.

Thermal Insulation

In most petrochemical facilities, tanks, piping and valves in hot service are insulated by preparing and priming the steel, wrapping them with insulation materials such as mineral wool or calcium silicate, and then cladding them with light metal jackets to protect insulation from elements and minimize moisture intrusion.

Conventional insulation, while very efficient when dry, loses much of its thermal insulating properties once it is permeated with moisture. Frequent rains and high-humidity conditions provide endless moisture which infiltrates either as liquid or water vapor under the insulation cladding, saturating the insulation material. The result can be catastrophic in its effects, and is known as corrosion under insulation (CUI).

Two problems are set in motion here: first, the insulation value is greatly diminished as the air in the insulation material is replaced by water which is exponentially higher in thermal conductivity. Second, the moisture combines with airborne chemicals and salt as well as the insulation material itself to become an ideal electrolyte for corrosion cells to form on the asset substrate. This corrosive activity is hidden, and often not discovered until full rust-through of the substrate has occurred. To combat this safety and reliability issue, expensive spot inspection for CUI is often employed.

Increasingly, owners are opting to install spray-applied, non-clad thermal insulative coatings that provide a monolithic barrier to water, chemicals, UV rays and heat transfer. They also provide personnel burn protection, thermal insulation for energy conservation, condensation control and protection from radiant solar heating.

Formulated from waterborne acrylic resins with ceramic and glass beads or microspheres that minimize energy transfer through the film due to its high air content, these coatings adhere to the underlying primer and prevent water or moist air from corroding the steel. The air content is so high in these coatings that the weight of a liquid gallon is only about 5 to 6 pounds, with much of that weight evaporating out during the drying process.

Because there is no cladding involved in the system, spray-applied insulative coatings can be monitored for corrosion and maintained like any

other external coating system. Thermal insulative values will remain constant and predictable. This means that assets insulated with this modern system can be removed from the expensive CUI monitoring protocol.

Thermal insulative coatings can be spray-applied on surfaces operating at up to 350 F over primers that are either zinc-rich (organic or inorganic), high-temperature-resistant epoxies or multipolymeric matrix silicones. All three of these primer technologies can perform well depending on expected temperature, the surface preparation that could be attained and the application technique available. They are also less labor intensive and safer to apply than conventional clad insulation.

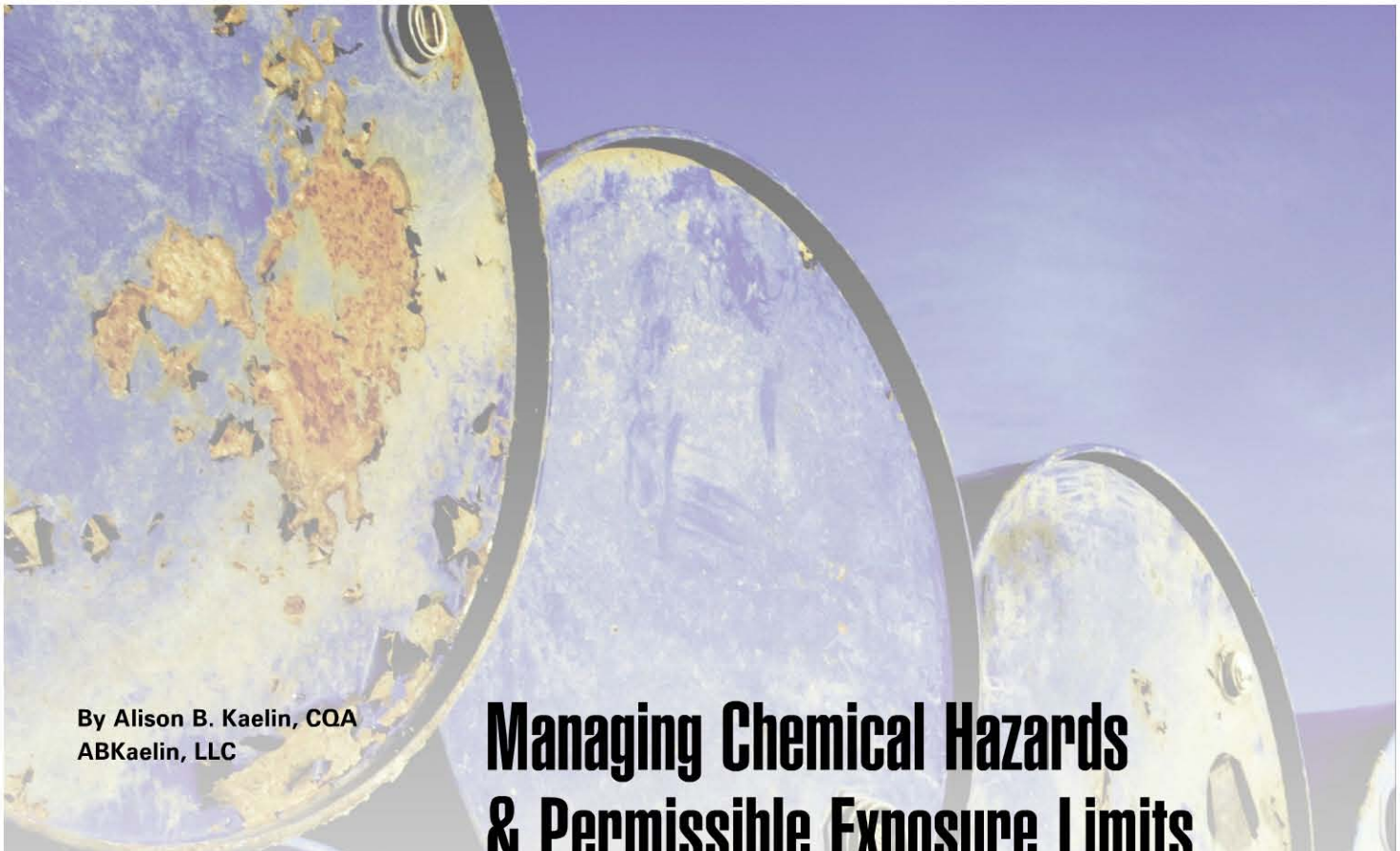
To achieve the desired thermal properties, the coatings are applied in multiple fast-drying coats, then finished with a chemical and moisture-resistant acrylic topcoat for long-term performance. Unlike conventional insulation, this system will repel water and moisture vapor and maintain its original insulating properties in any weather condition. With an unlimited recoat window, maintenance personnel can handle periodic repair and touch-up, and the system can be washed to remove dirt, mildew and other surface contaminants.

Conclusions

Within the oil and gas market segment, owners, specifiers and coating contractors can benefit from being aware of the latest trends in protective coatings in order to extend asset life and achieve efficiencies in application and maintenance. Updating coating and lining specifications to include materials that will accommodate typical Gulf Coast weather conditions can pay significant dividends, both in short-term scheduling and over the asset's lifecycle.

About the Author

Ron Knecht is Regional Market Segment Director, Oil & Gas, North America, for The Sherwin-Williams Company. He has held various positions at Sherwin-Williams since 1985, specializing in protective coatings in the oil and gas market since 1993. He has been a member of NACE and SSPC for more than 20 years and is a NACE Level 3 Certified Coating Inspector. He holds a Bachelor of Science degree in business management from Oklahoma State University. JPCL



By Alison B. Kaelin, CQA
ABKaelin, LLC

Managing Chemical Hazards & Permissible Exposure Limits

Coatings Industry Considerations

In October 2014, the Occupational Safety and Health Administration (OSHA) announced it is seeking public comment on strategies for managing chemical hazards in the workplace and approaches to updating chemical permissible exposure limits (PELs). In this request, OSHA admits that "Many OSHA PELs are out-of-date and they're not adequate for ensuring protection of worker health." The initiative is requesting public comment by April 8, 2015 on how to streamline and improve OSHA's process for updating PELs and possible approaches to reducing and controlling chemical exposures in the workplace.

This article discusses material provided in the request for information and the OSHA website section; "Transitioning to Safer Chemicals" and evaluates them based on their potential relevance or impact on the coatings industry.

Permissible Exposure Limits

PELs establish the acceptable amount or concentration of a substance in the air in the workplace. They are intended to protect workers from adverse health effects related to hazardous chemical exposure.

Most of OSHA's PELs were issued shortly after adoption of the Occupational Safety and Health (OSH) Act in 1970. OSHA has occupational exposure limits for only about 470 substances. Section 6(a) of the OSH Act allowed OSHA to adopt existing federal standards or national consensus standards as enforceable OSHA standards. Most of these are listed as simple limits in the three Z-Tables of 29 CFR 1910.1000; Subpart Z, Toxic and Hazardous Substances: Table Z-1, Limits for Air Contaminants, Table Z-2, and Table Z-3, Mineral Dusts.

Approximately 30 chemicals and carcinogens are regulated through Comprehensive Health Standards (including lead, cadmium, hexavalent chromium and arsenic). Most PELs were adopted from the Walsh-Healy Public Contracts Act as existing federal standards for general industry. These were adopted from the 1968 Threshold Limit Values (TLVs) of the American Conference of Governmental Industrial Hygienists (ACGIH).

This means that approximately 95 percent of OSHA's current PELs have not been updated since they were adopted nearly 45 years ago. Further, the American Chemistry Council estimates that approximately 8,300 chemicals are being used in significant amounts in the workplace, and that OSHA is regulating approximately only 5 percent of these chemicals.

Industrial experience, safety, health and industrial hygiene professionals and organizations, new developments in technology, and current scientific data (such as what we now have about lead, silica and isocyanates to name just a few) clearly demonstrate that, in many instances, the outdated PELs are not sufficiently protecting worker health. Even the more recent PELs, such as the OSHA PEL for "Lead in Construction" of 50 $\mu g/m^3$ as an eight-hour time-weight-

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ed average established in 1993, is now considered to be outdated based on current health effects data.

In 1989 OSHA tried to update and establish new PELs for more than 350 chemicals in a single rulemaking. However, the entire rulemaking was ultimately vacated by the court.

Industrial hygiene professional associations and safety advocacy organizations such as the American Industrial Hygiene Association (AIHA) and the ACGIH have advocated updating OSHA's outdated PELs for years.

PEL Updates

Currently, Section 6(b) of the OSHA Act mandates that OSHA meets the following requirements before proposing rules for a comprehensive health standard:

- The standard must substantially reduce a significant risk of material harm.
- Compliance with the standard must be technically feasible. This means that the protective measures required by the standard currently exist, can be brought into existence with available technology, or can be created with technology that can reasonably be developed.
- Compliance with the standard must be economically feasible. This is reviewed by the Office of Management and Budget.
- It must reduce risk of adverse health to workers to the extent feasible.
- The standard must be supported by substantial evidence in the record, consistent with prior agency practice or is supported by some justification for departing from that practice.
- These requirements and the sheer number of chemical compounds in use, make updating current PELs or issuance of new PELs for other chemicals cumbersome and nearly impossible to achieve.

As part of the request for information (RFI), OSHA has indicated that new strategies are also needed to update and supplement the PELs. OSHA Director Dr. David Michaels stated that OSHA is exploring a number of "more flexible, scientifically accepted approaches that may streamline the risk-assessment process and increase the capacity to address a greater number of chemicals." OSHA indicates it is considering the following concepts:

- A tiered approach to exposure-response assessment that will enable the agency to establish acceptable PELs for larger numbers of workplace chemicals;
- Chemical grouping approaches to expedite the risk assessment process;
- Toxicity testing and other emerging test data to calculate risk;
- Alternative approaches to judging economic and technical feasibility that might involve less time and fewer resources;
- Opportunities to incorporate non-regulatory "informed substitution" — the considered transition from a potentially hazardous chemical, material, product or process to a safer chemical or non-chemical alternatives — as part of workplace chemical management; and
- Banding chemicals together either through similar toxicity, occupational exposure danger, task-based exposure or through control measures such as dilution ventilation, engineering controls or containment.

In the RFI discussion of the potential approaches, OSHA relies heavily on the Hazard Communication Standard (HCS). It suggests that priorities for new and revised PELs may be based on the updated hazard classifications established in the HCS. It states that data used for "banding" (grouping based on similarities) could be based on information in the safety data sheets. One method suggests that the hazard classification and dustiness of the material might have to be considered.

The RFI also suggests that OSHA is interested in using task-based control approaches in the construction industry such as the method used in the recently proposed rule for crystalline silica. This approach allows employers to choose to measure their workers' exposure to silica and independently decide which controls work best in their workplaces. Alternately, the employers can simply use a pre-established control method that outlines work practice, engineering controls and respiratory protection based on the task (such as use of hand grinders).

Alternative Approaches to Chemical Management

OSHA indicated that workers suffer more than 190,000 illnesses and 50,000 deaths annually due to chemical exposures. Workplace chemical exposures are linked to various cancers, lung, kidney, skin, heart, stomach, brain, nerve, and reproductive diseases.

As a precursor to the RFI, in October 2013 OSHA introduced the "Transitioning to Safer Chemicals: A Toolkit for Employers and Workers" website and annotated an occupational exposure limits table to assist employers to voluntarily reduce chemical

exposures and adopt newer, more protective workplace exposure limits.

Transitioning to Safer Chemicals Process

The "Transitioning to Safer Chemicals" (www.osha.gov/dsg/safer_chemicals/index.html) and "Toolkit" online resources support OSHA's hierarchy of controls where hazard elimination or substitution make the most effective solution for reducing chemical hazards.

The OSHA step-by-step toolkit provides employers and workers with information, methods, tools and guidance on using informed substitution in the workplace. It can be utilized by all types of businesses that use products containing chemicals in their everyday operations.

The Toolkit Steps

Step 1: Engage

- Form a team to develop a plan.
- Develop goals for chemical management.
- Develop a work plan.

Step 2: Inventory and Prioritize

- Identify current or expected chemical inventory.
- Obtain product information.
- Identify and assess risks, health effects, exposure pathways, etc. through review of SDS and other data.
- Prioritize transition based on risk, use, health effects, etc.
- Provides resources for locating product and health data.

Step 3: Identify Alternatives

- Provide resources for locating and evaluating safer chemicals.

Step 4: Assess and Compare Alternatives

- Identify performance characteristics.
- Determine whether alternatives introduce new risks.
- Note other regulatory considerations such as air emissions and TRIR reporting.
- Assess costs.
- Assess potential changes in worker experience, training and transition.

Step 5: Select

Step 6: Pilot Test the Alternative

- Implement a pilot or small scale test.
- Identify resources needed if alternative is implemented.
- Evaluate.

Step 7: Implement and Evaluate the Alternative

- Evaluate worker benefit (reduction in exposures).
- Determine if alternative meets needs.

Annotated Z-Tables

OSHA's mandatory PELs in the Z-Tables remain in effect. However, OSHA recommends that employers consider using the alternative occupational exposure limits because the agency believes that exposures above some of these alternative occupational exposure limits may be hazardous to workers, even when the exposure levels are in compliance with the relevant PELs.

The annotated tables provide alternative occupational exposure levels from the following sources:

California Division of Occupational Safety and Health (Cal/OSHA) PELs

Cal/OSHA has created a broad list of PELs (Cal/OSHA AC-1 Table) that are enforced in workplaces under its jurisdiction. Of all the states that have OSHA-approved state plans, California has the most extensive list of PELs.

NIOSH Recommended Exposure Limits (RELs)

NIOSH assesses all accessible medical, biological, engineering, chemical, and trade information pertaining to the hazard. NIOSH communicates its recommendations to OSHA in order to produce legally enforceable standards. NIOSH also publishes a pocket guide to chemical hazards, alerts, special hazard reviews and technical guidelines.

ACGIH Threshold Limit Values (TLVs)

ACGIH is a private, scientific organization that produces recommendations and guidelines to help manage occupational health hazards. TLVs are airborne concentrations of chemical substances which are believed to cause no adverse effects after repeated exposure over a working lifetime.

Because the TLVs are based solely on health issues, there is no attention given to economic or technical practicality. They are recognized as credible and their inclusion is required on safety data sheets by the HCS.

The complete set of annotated tables can be accessed at www.osha.gov/dsg/annotated-pels/index.html.

Paint and PELs

How could this effect the painting industry? Current hazardous constituents present in most coating formulations could potentially be affected through reduction of existing PELs or introduction of new PELs for the 95 percent of chemicals not covered.

A quick review of the safety data sheets for commonly used zinc, epoxy and urethane three-coat systems indicated that PELs exist for most chemicals listed; however, most PELs were significantly higher than TLVs or Cal/OSHA Levels. Cal/OSHA is currently considering reduction of the PEL for lead to 15 to 20 $\mu g/m^3$ and other groups are lobbying for reductions in hexavalent chromium and other standards. As new safety data sheets continue to come online through the HCS, it is expected that OSHA will apply more and more pressure to drastically reduce PELs accordingly.

Conclusions

The scope of the RFI and the information on which OSHA wants feedback are so vast that it is impossible to predict what regulatory changes, if any, will ultimately result from this process. The RFI poses more than 50 general questions seeking information that will establish the agency's approach for evaluating and regulating chemical exposure in the workplace. There is no question, however, that employers who regularly handle chemicals in the workplace should pay careful attention to this RFI and consider submitting information by April 8, 2015 to be part of the record as the agency considers its next steps.

So What Can We Do?

Employers who regularly handle chemicals in the workplace should respond to the OSHA request for information by the April 8, 2015 deadline.

- Start looking at your voluntary chemical usage (chemicals not specified or mandated by contract). Are there opportunities to substitute a less hazardous product? If so, use the seven-step process to investigate replacements.
- Consider your worker exposures to lead and other materials which have PELs that we know are insufficient. Consider revising your work practices, engineering controls and training to proactively reduce worker exposures to as low as is feasible.
- Keep tuned, there is certain to be more conversation and controversy as this process unfolds.

About the Author

Alison B. Kaelin, CQA, has more than 25 years of public health, environmental, transportation and construction management experience in the coatings industry. She is the owner of ABKaelin, LLC, a provider of OSHA training; quality assurance, auditing, consulting, and related services to the protective coatings, construction, fabrication, and nuclear industries.

Kaelin is a certified quality auditor and a NACE-certified Coating Inspector. She was a corecipient of the inaugural SSPC 2014 Women in Coatings Award, a 2012 *JPCL* Top Thinker, a 2012 *JPCL* Editor's Award Winner and an SSPC Technical Achievement Award winner in 2005. Kaelin is also a *JPCL* contributing editor. JPCL

Show Preview

World of Concrete Returns to Las Vegas

Photo courtesy of the Las Vegas News Bureau.

The 41st annual World of Concrete (WOC) show and exhibition will take place at the Las Vegas Convention Center (LVCC) from February 2 to 6, 2015. This annual international event is intended for commercial concrete and masonry professionals and will feature educational programs, safety and training, indoor and outdoor exhibition areas and other special events.

WOC's technical program will be held Feb. 2 to 6 and will be comprised of skill-building seminars with industry experts, interactive workshops and several hands-on safety training and certification opportunities. Over 1,300 companies will also display their equipment, products and services in the WOC exhibit hall, from Feb. 3 to 6.

For complete, up-to-date information on World of Concrete 2015, visit worldofconcrete.com.

WOC Attendees at SSPC 2015

The WOC 2015 will take place concurrently with SSPC 2015 featuring GreenCOAT, which will be held adjacent to the LVCC at the Westgate Las Vegas Resort.

The SSPC 2015 Exhibit Hall will feature many types of concrete-related companies that may be of interest to applicators, contractors, coating manufacturers and others who specialize in concrete structures. WOC attendees can gain entrance to the SSPC 2015 Exhibit Hall at no cost by bringing their WOC badges to the SSPC 2015 Registration Desk to receive an exhibit pass.

WOC attendees who are interested in the SSPC 2015 technical program can register for Concrete Day, which is Thursday, Feb. 5. For listings and descriptions of the concrete presentations, check out the Technical Program section of the SSPC 2015 Advance Program in this issue, which begins on p. 59.

Exhibitors at WOC 2015

The following is a list of companies exhibiting at World of Concrete 2015 that may be of interest to protective coatings professionals. Information is current as of press time. For a complete exhibitors list, visit worldofconcrete.com.

AC-Tech S13239
ADCOS NV advance Construction Systems S12218
Adhesives Technology Corp. S11419
Anvil Paints & Specialty Coatings S13050
APOC.....S12850
Aquafin Inc. S10549
ARAMSCO S10355
Arizona Polymer Flooring ...S10554
Aurand Manufacturing & Equipment Co. S11357
BASF Construction Chemicals S10107
Bayer MaterialScience, LLC O40335
Black Lab – a Fairmount Minerals Company S11815
BlastPro Manufacturing, Inc. S11439, S11507
Blastrac S10117b, S10117c
C.I.M. Industries Inc. S13224
C.J. Spray Inc.....S10185
ChemCo Systems Inc.....S10455
ChemMasters Inc. S11721
Clemons Concrete Coatings .S11948
CoatingsPro Magazine.....S12653
Concrete Sealants, Inc. S11707
Convenience Products.....O40741a
Cortex Corporation.....S11854
Cote-L Industries S11250
DeFelsko Corporation.....S12056
Denso North America.....S11554
Doosan Portable Power O31629
Dow Building Solutions C3449
Dow Chemical Company NES13
Dur-A-Flex, Inc. S12127, O40605, O40601
Dustless Blasting S12450
EDCO – Equipment Development Co., Inc. O30648
EPOXY2U, LLC S12822
The Euclid Chemical Company/Increte Systems S10639

Everlast Epoxy Systems, Inc. S13039
Evonik Industries.....S13339
Flexmar Coatings.....S13006
Franmar S12639
Goff.....S11255
Graco/EcoQuip.....O31071
Gulf Coast Paint Mfg., Inc. S13343
Harsco S11252
HP Spartacote.....S11315
IBIX North America S12411
iCoat Products S11849
ITW Polymers Coatings North America S12744
Jetstream of Houston LLP S11613
Key Resin Co.....S11654
Klindex SRL.....O30751
KOSTER American Corp. S10507
Kote Chemical.....S13118
Life Deck Products/BD Classic Coatings S12407
Marvel Industrial Coatings S13230
Milamar Coatings, LLC.....S12922
Multicoat Corporation S12921
Neptune Coatings.....S12553
NLB Corp.....S11407
Novatek Corporation S10555
Nox-Crete Products Group S11219
Penntek Industrial Coatings S13107
Polycoat Products.....S11521
Polyguard Products, Inc.....S11213
Polyset Co., Inc.....S12253
Poly-Tuff Systems S10451
Proceq S11115
Professional Products of Kansas, Inc. S10354
PROSOCO, Inc.....S11907, S12007
Raven Industries S12507
Rust-Oleum Industrial Brands S12109
Safway Group O31932
Seal-Krete High Performance Coatings.....O40741
Sika Corporation S10907
Simpson Strong-Tie Anchor Systems O30220
Sky Climber LLC.....N1327
Smith Paint Products O40839
Specialty Products Inc. (SPI) S12648
Spray Equipment & Service Center.....S11745
SSPC: The Society for Protective Coatings.....S11610
Stuc-O-Flex International, Inc. N1359
Sulzer Mixpac USA S10955
Superabrasive, Inc. S11339, O31418
SuperSkinSystems.....S12923
SURFKOAT S11454
Urethane Polymers/Tufflex/ Excellent Coatings.....S11121
W.R. Meadows, Inc. S10807
Westcoat S12512
Wooster Products, Inc. N2146

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SSPC The Society For Protective Coatings

www.sspc.org 40 24th Street 6th Floor Pittsburgh, PA 15222-4656 P: 412.281.2331 T: 877.281.7772 F: 412.281.9992

Dear Coatings Professionals,

Time flies when you're having fun!

That adage seems especially appropriate as we move toward 2015, because next year represents a key milestone in the history of SSPC as we celebrate our 65th anniversary! In addition to hitting the big 6-5, 2015 will mark our return to Las Vegas with SSPC 2015 featuring GreenCOAT. Making things even more interesting is the fact that SSPC 2015 is going to run concurrently with World of Concrete, giving you more opportunities than ever before to network with owners, suppliers, and contractors.

With that in mind, it is my honor and privilege to invite you to join SSPC and the international community of members at the SSPC 2015 conference and exhibit at the Westgate Las Vegas Resort, February 3-6, 2015. You may recognize the Westgate as the former Las Vegas home of The King, Elvis Presley, back when it was the Hilton. The Westgate is located right next door to the Las Vegas Convention Center, so attendees will have easy access to both shows, and exhibitors can expect an influx of new faces.

As you'll see in this booklet, SSPC members and staff are hard at work putting together all facets of the conference, from training and education to the exhibit hall and networking events. For many reasons, interest in this particular conference is very high, so make sure that attending the show is part of your 2015 plans.

Some highlights include:

- **Exhibits** – From longtime exhibitors to first time participants, the exhibit hall is the best place to find exciting new products to solve your biggest problems. Right now, exhibit space is 90% sold out!
- **Training** – Whether you're looking to get an advanced certification or refresh on some basics, the SSPC show represents the best opportunity to get training, with more classes at one time, in one place, than any other time of year.
- **Young Professionals** – After the successful launch in Orlando, SSPC Young Professionals will gather again in Las Vegas to give this key group of future leaders a stronger voice in the coatings industry.
- **Student Poster Session** – For the first time, the show will feature a Student Poster Session that will allow students and young professionals to display and present some of the latest research and concepts being studied in the coatings industry.
- **World of Concrete Admission** – Our friends at Hanley Wood are offering SSPC attendees a special discount on World of Concrete registration so you can experience the wide range of opportunities at this mega-show.

All in all, there's never been a better time to be a member of SSPC and the 2015 show is shaping up to be one of the most dynamic we've had in years. I encourage you all to come out and support your society. Bring along a colleague, a student or young professional and introduce them to the opportunities that being a member of SSPC provides.

I look forward to seeing you in Las Vegas!

Sincerely Yours,

James R. King
SSPC President

SSPC 2015 featuring GLOBALCOAT
FEBRUARY 3-6, 2015
WESTGATE LAS VEGAS RESORT, LAS VEGAS, NV
www.sspc2015.com

Enjoy Special Events, Awards at SSPC 2015

SSPC 2015 attendees and their guests will have the opportunity to take in a number of scheduled special events and award ceremonies. For more details, visit sspc2015.com.

A variety of awards will presented at the SSPC 2015 Awards Luncheon. Photo courtesy of SSPC.

OPENING CELEBRATIONS

Welcome Reception — Welcome to the Magic

Tuesday, Feb. 3, 5:30 to 7:30 p.m.

Sponsored by Carboline, this welcome reception allows guests to enjoy hors d'oeuvres and cocktails with SSPC Board members, staff, colleagues and business acquaintances.

Exhibit Hall Opening Reception

Wednesday, Feb. 4, 5:00 to 8:00 p.m.

The ribbon cutting and opening of the SSPC 2015 exhibit hall will take place amid great celebration. Food and beverage stations, sponsored by Sherwin-Williams, will be available as guests are free to roam the hall and check out the more than 100 exhibitors.

The Exhibit Hall After Party — The King & You

Wednesday, Feb. 4, 8:00 to 10:00 p.m.

After the exhibit hall opening, head next door to the After Party Lounge for more food and drinks, sponsored by Jotun. Elvis will be on hand, and a DJ will feature his music.

ANNUAL BUSINESS MEETING AND AWARDS LUNCHEON

Tuesday, Feb. 3, 11:30 a.m. to 1:00 p.m.

Join SSPC President Jim King, Executive Director Bill Shoup and the Board of Governors to hear SSPC's Annual Report and to honor the 2014 award recipients at the Annual Business Meeting and Awards Luncheon. The following is a list of awards to be given at this year's luncheon. Recipients of some awards have already been selected, while the others will be chosen in the upcoming weeks.

SSPC Honorary Life Member

This honor is presented to an individual by the Board of Governors for extraordinary contribution and long-term activity on behalf of SSPC. To become an honorary life member, an individual must be nominated by a Board member and approved by two-thirds of the Board. Only one honorary life membership is awarded each year.

This year's Honorary Life Member is Kenneth Trimber, president of KTA-Tator, Inc.

John D. Keane Award of Merit

Named for SSPC's executive director from 1957 to 1984, this award acknowledges outstanding leadership and significant contribution to the development of the protective coatings industry and to SSPC.

The recipients of this year's John D. Keane Awards of Merit are Lydia Frenzel, Advisory Council; and Alfred D. Beitelman, retired from the U.S. Army Corps of Engineers (USACE).

SSPC Coatings Education Award

This award is given for significant development and dissemination of educational material and technical information relating to protective coatings and their application.

SSPC Technical Achievement Award

This award recognizes outstanding service, leadership and contribution to the SSPC technical committees.

Women in Coatings Impact Award

Awarded for the first time last year, this award was established to recognize women in the coatings industry whose contributions have

created a positive impact on the culture of the industry.

SSPC Outstanding Publication Award

This award is given annually to the author(s) of the best technical paper or presentation from the SSPC International Conference and Exhibition or from *JPCL*, that scores the highest in the following categories:

- Clarity of expression and organization;
- Originality of content or presentation;
- Importance to the protective coatings industry; and
- Effectiveness of figures or tables.

SSPC selects a panel of judges from SSPC and *JPCL* to vote on the award.

JPCL Editors' Awards

The same panel of judges selects the recipients of the *JPCL* Editors' Awards, which also recognize excellence in technical writing. Winners are selected from a field of more than 100 eligible papers from SSPC 2014 and from *JPCL* articles published between July 2013 and June 2014. Awards are also based on clarity, originality, significance to the industry and effective use of illustrations.

President's Lecture Series Award

This award honors a technical presentation that is handpicked by the SSPC president and chosen for its reflection of the coatings industry and profession. The presentation will be highlighted in the SSPC 2015 Onsite Guide, and the winner will be recognized at the Awards Luncheon.

This year's President's Lecture Series Award is presented to, "The Problem with Meeting Dry Film Thickness Specifications," by Dr. Raouf Kattan and John F. Fletcher.

SSPC Outstanding Chapter Awards

Each year, SSPC presents awards to the Outstanding North America Chapter and the Outstanding International Chapter. Chapters are evaluated on their overall operation and the creativity and quality of the events they hold each year.

SSPC Structure Awards

The ninth annual SSPC Structure Awards will honor teams of contractors, designers, end users and other personnel for excellence and expertise demonstrated on industrial and commercial coatings projects. Awards to be presented are:

- The William Johnson Award for outstanding achievement demonstrating aesthetic merit in industrial coatings work;
- The E. Crone Knoy Award, recognizing outstanding achievement in commercial coatings work;
- The Charles G. Munger Award for an industrial or commercial project demonstrating longevity of the original coating;
- The George Campbell Award, recognizing the completion of a difficult or complex industrial coatings project; and
- The Military Coatings Award of Excellence for exceptional coatings work performed on U.S. military ships, structures or facilities.

JPCL will feature this year's Structure Awards recipients in a photo essay next spring.

SPOUSE AND GUEST TOURS

Two optional tours are available for attendees' spouses and guests. The costs of these tours are not included in the conference registration; tickets for each tour must be purchased separately.

These tours were arranged through Hosts Las Vegas, a member of the Hosts Global Alliance and one of the largest and longest operating destination management companies (DMCs) in Las Vegas. Their award-winning programs have been recognized both locally and globally for their creativity, budget-awareness and sophisticated logistics. They were honored to be chosen by SSPC as their tour provider.

Lake Mead Lunch Cruise

Wednesday, Feb. 4,
10:30 a.m. to 1:30 p.m.

Only minutes from the glitter and glamour of

A cruise aboard the Desert Princess *on Lake Mead is available for SSPC 2015 attendees' spouses and guests. Photo courtesy of Lake Mead Cruises.*

SSPC 2015 featuring GREENCOAT
FEBRUARY 3-6, 2015
WESTGATE LAS VEGAS RESORT, LAS VEGAS, NV
www.sspc2015.com

Brush Up on Your Skills in SSPC 2015's Workshops

There are nine workshops scheduled as part of SSPC 2015's technical program. Questions about the technical program can be directed to Sara Badami at badami@sspc.org; or 412-281-2331, ext. 2208.

TUESDAY, FEB. 3

Afternoon Session 1, 1:30 to 4:30 p.m.

• "Protective Coatings — An Overview," by Chris Farschon, PCS, Tony Serdenes and Ron Quesenberry; Greenman-Pedersen, Inc.

This workshop will provide an overview of an industrial protective coatings project, including design considerations, material selection, surface preparation guides, ambient conditions and basic quality control techniques. Participants will attain a basic understanding of how protective coatings are specified and applied to meet the goals of a project. The workshop will also review and present typical inspection instruments that would be used on a paint project, surface preparation guides, how to read a product data sheet and how to measure ambient conditions.

Afternoon Session 2, 1:30 to 4:30 p.m.

• "An In-Depth Look at Standards Most Frequently Used by Industrial Painters," by Michael Damiano, PCS, SSPC; and L. Skip Vernon, PCS, MCI, Coating and Lining Technologies, Inc.

This workshop will explore several new and recently revised versions of SSPC standards used by industrial painters, including revisions to SSPC-PA 2 and SSPC-AB 2, and other new SSPC standards focusing on the more obscure requirements and ambiguities of each. The workshop will address what constitutes an industry standard, the contractual implications of specifying using only a standard and the impact of secondary and tertiary references in standards.

WEDNESDAY, FEB. 4

Morning Session 1, 8:30 to 10:00 a.m.

• "Coating Failure Investigations in Action," by Cynthia L. O'Malley, PCS, KTA-Tator, Inc.

This set of interactive scenarios will allow attendees to follow a consultant and laboratory analyst on their journey and decide what the investigators should do at crucial points in the process. The presented case studies, delivered via an interactive platform, will mimic the real world but challenge you to practice and apply investigative skills in a risk-free environment. The follow-up with the presenter will help evaluate the effectiveness of your decisions, and the impact of your decisions on the conclusions and recommendations.

Morning Session 4, 8:30 to 10:00 a.m.

• Understanding Building Enclosure Coatings — Project Design and Inspection Workshops, Part I
Sponsored by *Durability + Design*
"New Construction Coating Design/

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Photo courtesy of Westgate Las Vegas Resort.

Specification Workshop," by Davis Kyle, Master Painters Institute; and Richard Watson, The Sherwin-Williams Company

This workshop will walk through the steps for selecting architectural coating systems to address project-specific needs and preparing the specification for doing the work. It will focus on the MPI decision tree for architectural (new construction) coating selection and the use of AIA Masterspec to create specifications.

Mid-Morning Session 4, 10:30 a.m. to 12:30 p.m.

• Understanding Building Enclosure Coatings — Project Design and Inspection Workshops, Part II
Sponsored by *Durability + Design*
"QA During Painting of Buildings Workshop," by Ken Trimber, KTA-Tator, Inc.

This workshop will address all of the inspection steps necessary to properly implement the requirements of the specification, including hands-on use of instruments for verifying and measuring cleaning, ambient conditions, moisture testing, wet and dry film thickness and continuity (air leak detector).

Afternoon Session 1, 1:30 to 4:30 p.m.

• "Preventing Premature Coating Failures," by Michael O'Brien, Mark 10 Resource Group, Inc.

This practical and informative tutorial, loaded with pictures from actual failures, will discuss how to prevent premature coating failures. It is based on many real-life coating failures, investigated by the presenter during his 35-year career in the coatings industry. It is filled with numerous examples from approximately 30 different failure investigations with pictures of actual coating failures on steel, hot-dip galvanizing and concrete.

Afternoon Session 4,
1:30 to 4:30 p.m.

• Understanding Building Enclosure Coatings — Project Design and Inspection Workshops, Part III

Sponsored by *Durability + Design*

"Building Science/WUFI Workshop," by David de Sola, 3ive, LLC; and Kevin Knight, Retro-Specs, Ltd.

This workshop will address building science and explain why coatings are an integral component of the building assembly for both new construction and maintenance. It will introduce WUFI, a computer-based program used to simulate hygrothermal (heat and moisture) behavior of building assemblies, and demonstrate how WUFI can be used in building envelope design for new and restoration building projects. Attendees will gain an understanding of how the interior and exterior environments affect the selection of building envelope components and coating systems for masonry walls; the effect that coating permeance on exterior and interior walls has on wetting the interior of wall cavities; why coating systems that perform well on the outside walls of a building in the Midwestern U.S., may not


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work on an identical building located in the Southeastern U.S.; and the value of WUFI in selecting the optimal type and placement of coatings, insulation, and air/vapor barrier materials for building wall assemblies

THURSDAY, FEB. 5

Mid-Morning Session 2,
10:30 a.m. to 12:30 p.m.

• "Proper Use of Coatings Inspection Instruments," by Matthew Fajt, KTA-Tator, Inc.

This workshop will focus on the practical description of inspection instrumentation, followed by a series of hands-on workshops. Small groups will work with the inspection equipment to measure ambient conditions, surface profile and coating thicknesses with Type 2 (electronic) dry film thickness gages, and detect pinholes and holidays in thick-film coatings using high voltage detectors. Manufacturers' technical representatives will be on hand to assist with proper use of electronic dry film thickness gages.

FRIDAY, FEB. 6

Afternoon Session 1,
3:00 to 5:00 p.m.

• "Fall Protection Training," by Charlie Brown, Greenman-Pedersen, Inc.

This workshop will review what owners, contractors and safety personnel need to know in order to comply with the OSHA 1926.500 Fall Protection regulations. The presenter discusses regulations and safe operating procedures for aerial lift/bucket/under bridge access equipment, definitions of fall prevention, fall restraint and fall arrest, the different requirements of fall protection, recognizing hazards regarding fall protection, inspection of fall arrest equipment, anchorage points and training requirements. A discussion on various types of safety equipment for fall protection will complete the workshop.

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Add To Your Training and Certification at SSPC 2015

Registration for all SSPC 2015 training courses must be done separately from the SSPC 2015 conference registration. Some courses have prerequisites, which can be found online in the "Training and Certification" section of the show website, www.sspc2015.com.

To register, email or fax a completed training registration form to Nicole Lourette at lourette@sspc.org, or 412-281-9993. Information on how to register is also available at www.sspc.org/training. The deadline to register is January 12, 2015.

Selection of Coatings *NEW!*
Feb. 2

This course covers the skills required to specify and select a coating for a specific structure or environment. It defines the primary function of a coating, the types of substrates that are painted and the challenges of matching a coating to a service environment to properly protect the structure from corrosion.

Coating Application Specialist Refresher (CAS REF)
Feb. 2

The CAS Refresher is an overview of surface preparation and application covered in the Body of Knowledge of SSPC-ACS 1/NACE No. 13 Applicator Certification Standard No. 1, Industrial Coating and Lining Application Specialist Qualification and Certification. It covers topics in surface preparation and coating application and is especially designed for employees that are new to the coatings Industry.

Navigating NAVSEA Standard Item 009-32 (00932)
Feb. 2

This course provides attendees with a better understanding of the painting requirements outlined for U.S. Navy surface ships, submarines and aircraft carriers in Standard Item 009-32. It covers the cleanliness, surface preparation, coating application requirements and system application instructions for various Navy vessels. Requirements of referenced standards are also reviewed.

Using SSPC-PA 2 Effectively (PA 2)
Feb. 2

This half-day workshop explains the key highlights of SSPC-PA 2: Measurement of Dry Coating Thickness with Magnetic Gages. Students will learn to verify the accuracy of a DFT magnetic gage; measure the DFT of a coating with Type 1 or Type 2 gage; and describe and implement the procedure to determine if the film thickness in a given area conforms to the maximum and minimum levels specified.

Basics of Estimating Industrial Coatings Projects (EST)
Feb. 3

This course covers the fundamentals of estimating industrial painting job costs including surface area calculations, labor and production rates and equipment and material requirements.

Coating Application Specialist (CAS)
Feb. 3 (Level 1); Feb. 3–4 (Level 2)
The CAS Certification Program is designed to certify individual craft workers who have experience and training in all aspects of hands-on surface preparation and coating application of complex industrial and marine structures. This program consists of written exams only; no formal training is offered during this program.

Applicator Train-the-Trainer (ATT)
Feb. 3–4
This course is designed to train owners, supervisors, and other representatives of industrial painting contracting companies on the delivery of two levels of the SSPC Applicator Training Program for surface preparation and coating application. It provides a standardized curriculum for applicator training to present at the shop or job site. This course is only available to contractors and facility owners.

Floor Coating Basics (C10)
Feb. 3–4
This course is designed to meet the practical training requirements of SSPC-QP 8 Section 4.4, which require that each job crew chief and each QC manager complete a minimum two-day overview of concrete components, coating and surfacing types, and surface preparation and substrate repair techniques based on SSPC consensus standards TU-10, "Procedures for Applying Thick Film Coatings and Surfacings Over Concrete Floors." C10 can be taken in place of the first two days of CCI.

Developing an Effective Coating Specification (DEV CTG SPEC)
Feb. 3–5
This course presents an overview of the development of coating specifications, building upon CSI specification writing knowledge. It reviews the concerns that can affect project success, presents a checklist for developing coating specifications and focuses on the technical requirements to consider when preparing specifications for coating work, with an emphasis on steel and concrete industrial and marine structures.

Fundamentals of Protective Coatings (C1)
Feb. 3–7
The C1 course provides an overview for those who are new to the protective coatings industry. It is also an ideal refresher for reviewing the fundamentals of corrosion and the use of coatings as a protective mechanism against corrosion and deterioration of industrial structures.

NAVSEA Basic Paint Inspector (NBPI)
Feb. 3–7
NBPI is an inspection course developed by Naval Sea Systems Command (NAVSEA) to train coatings inspectors to inspect critical coated areas as defined by U.S. Navy policy documents. These areas include (but are not limited to): cofferdams, decks for aviation and UNREP, chain lockers, underwater hulls, bilges, tanks, voids, well deck overheads and others. This course is especially valuable, as it also provides the technical and practical fundamentals for coating inspection work for any steel structure projects other than ships.

Planning & Specifying Industrial Painting Projects (C2)

Feb. 3–7

C2 is designed to provide those who understand coating fundamentals with an overview of the principles of planning, awarding and monitoring the quality of new construction or maintenance painting projects. Students will become familiar with tools to develop effective coating projects and play a more active role in managing painting projects to successful completion.

Bridge Coating Inspector (BCI)

Feb. 3–7 (Level 1); Feb. 3–8 (Level 2)

The BCI program covers the fundamentals of how to inspect surface preparation and application of protective coatings on bridge steel. The course covers situations that affect inspection in the field (e.g. containment, field safety hazards, changing weather conditions), as well as the skills required to inspect new bridge steel painted in the shop, in the field or maintenance systems applied in the field.

Concrete Coating Inspector (CCI)

Feb. 3–4 (CCB); Feb. 3–7 (Tech Level); Feb. 3–8 (Cert. Level)

The CCI program provides several different paths to certification, depending on the attendee's current level of experience; these can be found on SSPC's website. Concrete Coating Basics (CCB) provides basic training and is a prerequisite for individuals seeking CCI certification. The objective of the CCI program is to thoroughly train individuals in the inspection of surface preparation and the installation of protective coatings on industrial concrete structures and facilities.

Protective Coatings Inspector (PCI)

Feb. 3–7 (Level 1); Feb. 3–8 (Level 2); Feb. 9 (Level 3)

The objective of this program is to thoroughly train individuals in the proper methods of inspecting surface preparation and installation of industrial and marine protective coatings and lining systems on an array of industrial structures and facilities. Candidates should be prepared for an intense and fast-paced week of training with evening homework and study.

PCI Level 1 has no prerequisites, but it is not an entry-level course. C1 is strongly recommended as a prerequisite for the PCI program. Students who pass the Level 1 exam and meet the prerequisites for Level 2 can take the written and hands-on Level 2 certification exams on day six. A passing grade on both exams is required to become a Level 2-certified inspector.

PCI Level 3 identifies and awards recognition to individuals who have in-depth knowledge in the inspection of industrial coatings. Those who pass the Level 2 exam and meet the prerequisites for Level 3 can take the Level 3 exam on day seven.

Evaluating Common Coating Contract Clauses (CONTRACT)

Feb. 4

This course will provide a basic overview of the clauses most common to coatings contracts. It follows the outline of a standard construction contract while also teaching students to identify the key provisions that may be missing from contracts they receive.

Lead Paint Removal (C3)

Feb. 4–7

The C3 course includes background information on the hazards of lead and other toxic metals, as well as the current legal and regulatory environment. The course contains specific discussions on protecting workers, compliance with environmental regulations, proper management of waste streams and operations that result in potential exposures to lead and associated control technology. The course also addresses reading specifications and developing programs to effectively control risks to workers, the public and the environment. It concludes with a discussion of insurance and bonding issues and an introduction to other safety and health issues.

Project Management for the Industrial Painting Contractor (PRO MGMT)

Feb. 5–6

This course offers an introduction to project management concepts used on industrial painting projects. Attendees will learn about generating new business, reviewing contracts, navigating employee relations, and building safety into the job. The second day of this course involves an exam in which participants resolve real-world project management scenarios.

Quality Control Supervisor (QCS)

Feb. 5–6

The QCS program provides training in quality management for SSPC-certified contractor personnel, Technical Quality Managers (TQM) and inspectors employed by SSPC-QP 5 inspection firms. It gives an overview of the quality management aspects of surface preparation, paint, coatings and inspection operations that a QCS needs to know. It is highly recommended that persons attending the QCS course have recent inspection training or equivalent formal training and some quality control experience.

Spray Application Program (C12)

Feb. 5–6

C12 is designed to train and certify marine and industrial applicators to operate airless spray equipment. The course also assesses the skills of applicators who have at least 800 hours applying protective coatings with airless spray.

Protective Coatings Inspector (PCI) Workshop

Feb. 6

This one-day workshop trains individuals in the proper methods and equipment for inspecting surface preparation and installation of industrial and marine protective coatings and lining systems on an array of industrial structures and facilities. It was designed as a supplement to students who have completed the PCI online program.

Lead Paint Removal Refresher (C5)

Feb. 6

C5 provides refresher training for supervisors/competent persons responsible for industrial deleading operations. It includes a review of basic information about lead and its human health hazards; a review and update of relevant EPA regulations and progresses through discussions of 29 CFR 1926.62 and changes in the Respiratory Protection Standard (29 CFR 1910.134); and discussions about emissions control as presented in SSPC Guide 6. Several state supplements are available. The C5 course also meets the requirements of state programs that require refresher training to maintain supervisor certification and meets QP 2 requirements for competent person refresher training certification.

Inspection Planning and Documentation (INSPEC PLAN)

Feb. 6–7

This course will teach coating inspectors how to plan inspections and document results of

tests and inspections conducted. The training will emphasize carefully reviewing plans and specifications in order to develop a comprehensive inspection plan, as well as using forms to accurately and legibly document project-specific inspection and test results, non-conforming work, and rework. This course is designed for practicing coating inspectors already familiar with commonly used coating inspection instruments and standards of practice.

Inspecting Containment *NEW!*
Feb. 7
This course covers how to determine what type of containment is necessary from the specification of work and the supplied drawings at the job site. It will discuss the role the inspector plays when inspecting the removal of toxic coatings within these structures.

Abrasive Blasting Program (C7)
Feb. 7–8
C7 is designed for contractor personnel who wish to obtain certification or others who wish to learn about dry abrasive blast cleaning of steel. It covers principles of surface preparation, surface cleanliness, surface profile, dust and debris control and abrasives. Students who do not want to receive the C7 certification can attend and receive a certificate of attendance by only attending the lecture portion of the training and observing the blaster demonstration.

Bridge Maintenance: Conducting Coating Assessments (BRIDGE)
Feb. 7–8
This course covers the fundamental inspections skills required to conduct a visual coating condition assessment of an in-service steel bridge. It provides a wide range of concerns that can affect the condition of the coating and presents a reporting and rating system that coincides with the AASHTOWare BrM coating rating system, enabling the owner to make an educated decision on how to repair the damaged and deteriorated coating.

Protective Coatings Specialist (PCS) Program
Feb. 8
The PCS certification program awards recognition to individuals who have in-depth knowledge in the principles and practices of industrial coatings technology. Certification attests the professional credibility of the coatings practitioner and raises the standards of the profession.

CCI Supplement: Determining the Level of Moisture in Concrete (CCI SUPP)
Feb. 9
This course covers the fundamental inspection skills required to conduct moisture testing of concrete substrates. It will define and explain the steps needed to take when measuring moisture in accordance with ASTM Standard Test Methods: ASTM D4263; ASTM F1869; ASTM F2170; and ASTM F2420.

Open Your Mind to SSPC 2015's Technical Program

Attendees at SSPC 2015 will be able to take in a full schedule of training courses, workshops, technical programs, peer forums, committee meetings, panel discussions, exhibitors, special events, award ceremonies and networking opportunities. This year's conference will also feature the first-ever Poster Session from February 4 to 6, which will be comprised of research presentations given mostly by students or young professionals.

The following is a list of the technical presentations and workshops that will make up SSPC 2015's technical program. For updates, visit sspc2015.com.

TUESDAY, FEB. 3

Afternoon — 1:30 to 4:30 p.m.

SESSION 1: WORKSHOP

• "Protective Coatings — An Overview," by Chris Farschon, PCS, Tony Serdenes, and Ron Quesenberry; Greenman-Pedersen, Inc.; 1:30 to 4:30 p.m.

**For a description, see Workshops, p. 50*

SESSION 2: WORKSHOP

• "An In-Depth Look at Standards Most Frequently Used by Industrial Painters," by Michael Damiano, PCS, SSPC; and L. Skip Vernon, PCS, MCI, Coating and Lining Technologies, Inc.; 1:30 to 4:30 p.m.

**For a description, see Workshops, p. 50*

SESSION 3: HOT-DIP GALVANIZING

• "Painting/Powder Coatings Over Hot-Dip Galvanized Steel," by Dr. Thomas J. Langill, American Galvanizers Association; 1:30 to 2:30 p.m.

This technical workshop is directed toward paint/powder coating manufacturers and contractors and will cover information to give both a thorough understanding of the unique characteristics of the hot-dip galvanized coating, as well as preparation of the galvanized surface before painting or powder coating, both critical to delivering a high-quality duplex system.

• "Application of Coatings Over Hot-Dipped Galvanizing," by Kevin Irving, AZZ Galvanizing Services; and Todd Williams and Ahren Olson, Bayer MaterialScience LLC; 2:30 to 3:30 p.m.

This presentation will discuss how painting over hot-dipped galvanized steel (duplex coating) can increase the life of both coatings by reviewing the application, evaluation, benchmarking and productivity enhancements of direct-to-galvanizing polyaspartic coatings versus epoxy/polyurethane and powder coatings.

• "Common Causes of Premature Coating Failures on Hot-Dip Galvanizing," by Michael O'Brien, Mark 10 Resource Group, Inc.; 3:30 to 4:30 p.m.

Every year, numerous premature coating failures occur with duplex coating systems on hot-dip galvanized steel, some massive and expensive to repair. The failure discussed in this presentation will include applications of coatings in the galvanizing shop and in the field. This presentation, based on numerous premature coating failures investigated by the author on HDG surfaces during the past 35 years, will provide the attendees with an understanding of the common reasons for premature coating failures on HDG.

SESSION 4: BUSINESS

• "Root Cause and Forward Thinking," by Doug Sawyer, CDS Custom, LLC; 1:30 to 2:30 p.m.

This presentation will outline a disciplined approach to the decision-making process by developing supported defensible rational for why we do things. The root cause approach to problem investigation will be translated to a forward-thinking decision matrix to understand and help eliminate project problems before they happen.

• "Managing a Multi-Generational Coatings Business," by Jon Goldman, Brand Launcher; 2:30 to 3:30 p.m.

Your coatings business will soon include Baby Boomers (1946-1964), Generation X ('60s & '70s) and Gen Y (1982-2000). These groups don't just think, talk and work differently; they have vastly different expectations of themselves, each other and you. This refreshingly practical session reveals straightforward strategies owners and managers can use to "bridge the gaps."

• "How to Reduce Human Error through Safety Self-Awareness," by

Photo courtesy of Westgate Las Vegas Resort

Greg Ford, TalentClick Workforce Solutions; 3:30 to 4:30 p.m.

This presentation will focus on the link between personality traits and high-risk behavior, examining human "default settings" of being impulsive vs. cautious, rule-resistant vs. compliant, distractible vs. vigilant, irritable vs. calm, and so on. It will show how this link can be used to recruit "safer" employees and train existing staff to reduce workplace incidents and increase productivity.

WEDNESDAY, FEB. 4

Morning — 8:30 to 10:00 a.m.

SESSION 1: WORKSHOP

• "Coating Failure Investigations in Action,"
by Cynthia L. O'Malley, PCS, KTA-Tator, Inc.; 8:30 to 10:00 a.m.
For a description, see Workshops, p. 50

SESSION 2: ENVIRONMENTAL, HEALTH, SAFETY AND REGULATIONS

• "Breathing Fresh Air of Compliance: Establishing an OSHA Compliant Respiratory Protection Program," by Nick Bozzuto, Bullard; 8:30 to 9:00 a.m.

This presentation will explain OSHA regulations and requirements for establishing a written respiratory protection program, including types of respirators, specific applications, maintain NIOSH compliance, and other key resources.

• "Regulatory Update: Current and Emerging Trends in Occupational and Environmental Health," by Alison B. Kaelin, ABKaelin, LLC; 9:00 to 9:30 a.m.

This annual presentation summarizes environmental, health and safety issues that may impact SSPC members. It will discuss current and expected EPA and OSHA regulatory rulemaking, emphasis programs, enforcement initiatives or other similar topics, as well as a review of OSHA's expected final standards on confined space in construction and silica and other proposed or revised regulations related to the coatings industry.

• "Minimizing Dust in Open Air Environments with Vapor Abrasive Blasting," by Bill Eliason, EcoQuip|AFTD|Graco Inc.; 9:30 to 10:00 a.m.

The coating and cleaning industries face many changes and challenges from environmental agencies, mostly relating to containment regulations and minimizing the dust in open-air blast environments. With these regulations now in place, contractors are looking for alternatives to traditional dry blasting. This presentation will explain the benefits of vapor abrasive technology.

SESSION 3: PANEL DISCUSSION

• "SSPC 2015 Coating Inspectors' Forum," moderated by Earl Bowry, PCS, Jotun Paints, Inc.; and J. Peter Ault, PCS, Elzly Technology Corporation; with panelists William Corbett, PCS, KTA-Tator, Inc.; and Malcolm McNeil, PCS, McNeil Coatings Consultants, Inc.; 8:30 to 10:00 a.m.

This year's panelists will be representatives from the major organizations that certify individuals as coating inspectors. Panelists will talk about what the major certification societies are doing to improve their overall coating inspector programs, what other coating inspectors think are the issues and what the solutions might be, and what changes facility owners and contractors feel would improve the overall coating inspector certification program.

SESSION 4: UNDERSTANDING BUILDING ENCLOSURE COATINGS — PROJECT DESIGN AND INSPECTION WORKSHOPS, PART I

Sponsored by *Durability + Design*

• "New Construction Coating Design/Specification Workshop," by Davis Kyle, Master Painters Institute; and Richard Watson, The Sherwin-Williams Company; 8:30 to 10:00 a.m.
For a description, see Workshops, p. 50

Mid-Morning — 10:30 a.m. to 1:00 p.m.

SESSION 1: PANEL DISCUSSION

• "Agree to Disagree: Exploring Differing Views on Causes of Coating Failures," moderated by Dwight Weldon, PCS, Weldon Laboratories, Inc.; with panelists Michael O'Brien, Mark 10 Resource Group, Inc.; Dudley Primeaux, PCS, VersaFlex Incorporated and Charles Harvilicz, Newport News Shipbuilding; 10:30 a.m. to 12:30 p.m.

A panel of coating specialists with experience in analyzing the causes of premature coating failures will review the same photos and laboratory data about a specific case and will explain their views on what happened and why. Each will represent a different party in the dispute — owner, general contractor, painting contractor and paint manufacturer. The panel moderator will lead a discussion about the differences in interpretation of the same facts.

SESSION 2: BRIDGE PAINTING AND PROTECTION

• "Paint System Performance Warranty," by Shameem A. Khan, Maryland State Highway Administration; 10:30 to 11:00 a.m.

Recent case studies will help attendees learn about the importance of warranties for improved coating system performance, the purpose and development of warranty special provisions for coating system performance, the types of applications of warranties for coating systems, and the pros and cons of warranties.

• "Bridge Maintenance Painting in the Land of 10,000 Lakes: MNDOT's Novel Approach to Improving Bridge Maintenance Painting Operations," by Richard A. Burgess, PCS, KTA-Tator, Inc.; and Sarah K. Sondag, P.E., Minnesota Department of Transportation; 11:00 to 11:30 a.m.

This presentation will explain the importance of uniform, accurate rating of coatings used for corrosion control on bridge structures, indentify the maintenance painting practices employed by other bridge agencies and authorities throughout the U.S., and identify methods for selecting the optimal maintenance painting strategy.

• "The Color of History: When the Brooklyn Bridge is Your Canvas," by Guerman Vainblat, P.E., Greenman-Pedersen, Inc.; and Timur Kolchinskiy, E.I.T., Hirani Group; 11:30 a.m. to 12:00 p.m.

This presentation, the third in a "trilogy" of presentations by the authors, will discuss the history of coatings-based corrosion protection of the Brooklyn Bridge and help attendees understand how different coating systems are utilized for select purposes, how to overcome unexpected impediments and issues that arise during a project, and how to process and analyze project data.

• "Development and Implementation of a Novel Method to Remove Inorganic Zinc Coating from Low Alloy Steel," by Barry Messer, Fluor Canada, Inc.; 12:00 to 12:30 p.m.

This presentation will discuss the chemical mechanism of a novel, environmentally friendly method to remove inorganic zinc to trace levels, the method of application and testing, the validation program utilizing X-Ray Fluorescence (XRF) analyzer Energy Dispersive X-Ray spectroscopy (EDX) calibration, and effective field implementation.

• "Into the Future: Advanced Thick-Film Spray Applied Liquid Waterproofing Membrane Systems for Bridge Deck Applications," by Dudley J. Primeaux, PCS, VersaFlex Inc.; and Joe Haydu, Bridge Preservation LLC; 12:30 to 1:00 p.m.

This presentation will focus on advancements in thick-film spray applied liquid waterproofing systems for bridge decks, focusing on performance properties, application and use techniques, as well as potential for robotic-type installation that will carry us into the future.

SESSION 3: MARINE COATINGS

• "Translational Corrosion Science," by Daniel J. Dunmire, DoD Office of Corrosion Policy and Oversight/LMI; 10:30 to 11:30 a.m.

Analysis of translational medical science provides a valuable model for the design and implementation of translational corrosion science. This presentation will explain why translational corrosion science is important and why SSPC is a stakeholder in this process.

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• "Corrosion: The Destructive Stowaway on Marine Vessels — Determining the Cost-Benefit of Protective Marine Coating Systems," by E. Bud Senkowski, PCS, P.E., KTA-Tator, Inc.; 11:30 a.m. to 12:00 p.m.

This presentation will describe the types, characteristics and functions of protective coating systems used aboard commercial and military vessels; the informational sources available for the design and specification of shipboard protective coating systems; existing software programs used to determine the service life of various combinations of coating materials and metallic substrates; and the contribution of various coating systems to the total operating cost of a vessel.

• "Low Solar Absorbing Epoxy Marine Decking," by Jing Zeng, PCS, Ph.D., and David Robinson, ITW Engineered Polymers; 12:00 to 12:30 p.m.

Low solar absorbing (LSA) attributes are important for marine decking materials. Reduced solar heat absorption can not only improve the condition of living and working spaces beneath any deck, but also help protect electronics and equipment. This article will review current LSA technologies and present the study on how to improve the solar reflectance and weather resistance of epoxy marine decking.

SESSION 4: UNDERSTANDING BUILDING ENCLOSURE COATINGS — PROJECT DESIGN AND INSPECTION WORKSHOPS, PART II

Sponsored by *Durability + Design*

• "QA During Painting of Buildings Workshop," by Ken Trimber, KTA-Tator, Inc.; 10:30 a.m. to 12:30 p.m.

For a description, see Workshops, p. 50

Afternoon — 1:30 to 4:30 p.m.

SESSION 1: WORKSHOP

• "Preventing Premature Coating Failures," by Michael O'Brien, Mark 10 Resource Group, Inc.; 1:30 to 4:30 p.m.

For a description, see Workshops, p. 50

SESSION 2: COATING TYPES, PART I

• "Close Encounters of the Third 'Crude Oil' Kind," by Mike O'Donoghue, Ph.D., and Vijay Datta, MS, International Paint LLC; 1:30 to 2:30 p.m.

This presentation compares and contrasts the performance of a variety of new technology linings for tank, vessel and railcar applications where the hydrocarbon media is shale oil (tight oil), sour crude oil and sweet crude oil.

Accelerated laboratory tests and case histories were used to determine the high-temperature resistance, barrier properties and adhesion to carbon steel of two-coat thin-film systems and single-coat, solvent-free lining systems.

• "Penetrating Sealer Over Latex Acrylic — Good or Bad?" by Greg Richards, KTA-Tator, Inc.; and Beth Steimle, TY Lin International; 2:30 to 3:00 p.m.

This presentation will highlight a case study of the use of a 100%-solids epoxy penetrating sealer as a tie coat between a tightly adhered latex acrylic and an aliphtic polyurethane.

• "Improving Performance of Epoxy-Polysiloxane Coatings," by Constantine Kondos, Momentive Performance Materials; 3:00 to 3:30 p.m.

This presentation will introduce a new resin technology incorporated into the epoxy-polysiloxane Part A portion of a two-component coating system, using an amino-silane curing agent, which has shown significant improvements in flexibility, gloss, color retention, corrosion resistance and adhesion to non-sand-blasted metal substrates. Results of lab tests of fully formulated coatings comprising the new resin technology will be presented versus control systems.

• "Coal Tar Enamel Service Life Extension," by Allen Skaja, Ph.D., PCS, U.S. Bureau of Reclamation; 3:30 to 4:00 p.m.

This presentation will cover the proper methods and procedures for spot repairing and salvaging minor damaged coal tar enamel. It will provide guidance to contractors and will describe the coating lifecycle from an end user perspective.

• "Isocyanate Free Polyurethane Coatings for Industrial Metal Applications," by Paul Popa, The Dow Chemical Company; 4:00 to 4:30 p.m.

This presentation describes a novel ambient cure, two-component isocyanate-free polyurethane coating technology that has the ability to decouple pot life from cure speed resulting in coatings with faster return to service and higher throughput. Additional performance attributes and benefits, such as good weatherability and chemical resistance in various industrial metal applications, will also be highlighted.

• "What Happens to Zinc Under Hot Insulation?" by BangYih Chen, PCS; 4:30 to 5:00 p.m.

Research has shown over the years that good practice of corrosion prevention under insulation is to apply an additional layer of a heat resistant modified epoxy or inorganic polymer coating as an additional barrier. This presentation will explain why this is the wrong coating system to specify for prevention of corrosion under insulation (CUI).

SESSION 3: CONCRETE PROTECTION SOLUTIONS

• "Resurrecting a Concrete Landmark," by Todd Gomez, PCS, VersaFlex Incorporated; 1:30 to 2:00 p.m.

This presentation will use a case study of an historic recoating project at the McGregor Memorial Conference Center to discuss new, advanced polyurea technology and how it may be used for concrete rehabilitation projects.

• "Surface Applied Organofunctional Silane Corrosion Inhibitors for Reinforced Concrete Structures," by Peter K. DeNicola, Evonik Corporation; 2:00 to 2:30 p.m.

This presentation will show that based on years of field and laboratory testing, organofunctional silane corrosion inhibitors are effective at corrosion mitigation, thus

decreasing the frequency and extent of repairs.

• "Coatings and Concrete: Understanding the Substrate," by Brian O'Farrell, PCS, DP Coatings Ltd.; 2:30 to 3:00 p.m.

This presentation is not about coating concrete floors, but about what to look for on a concrete floor prior to coating. It will discuss how to identify substrate problems, simple tests that will provide valuable information to estimators and applicators, and questions to ask owners and general contractors. It will also explain the difference between cured and dry concrete and the importance of moisture and how it can affect the concrete and the coatings.

• "Measuring Vertical Concrete Surface pH: Viable Test Method for Severe Service Exposures," by Vaughn O'Dea, PCS, Tnemec Company, Inc.; and Robert Maley, PCS, Corrosion Probe, Inc.; 3:00 to 3:30 p.m.

This presentation will review acid attack of vertical concrete, the importance of in situ pH measurements of vertical concrete prior to topcoating, existing pH measurement test methods and respective limitations, and proposed test methods for vertical concrete pH measurements.

• "'All Fouled Up' — An Innovative Solution," by Kevin Morris, The Sherwin-Williams Company; 3:30 to 4:00 p.m.

The speaker will present a view of some of the previous methods used to correct the problem of algae growth in wastewater facilities and the effects caused by these methods. He will highlight new technology to combat this problems and the process for testing this new technology. A case study where silicone foul-release coatings have been used to remediate the issues will also be discussed.

• "Coating Concrete in Water and Wastewater Treatment Structures," by Manuel Najar, V&A Consulting Engineers, Inc.; 4:00 to 4:30 p.m.

There are several design factors that need to be considered when specifying coatings in water and wastewater concrete structures. This presentation will present a number of important design considerations based on field experiences that can avert lining performance problems. Specific examples from a number of projects will be used to illustrate these design considerations.

SESSION 4: UNDERSTANDING BUILDING ENCLOSURE COATINGS — PROJECT DESIGN AND INSPECTION WORKSHOPS, PART III

Sponsored by *Durability + Design*

• "Building Science/WUFI Workshop," by David de Sola, 3ive, LLC; Kevin Brown, KTA-Tator, Inc., and Kevin Knight, Retro-Specs, Ltd.; 1:30 to 4:30 p.m.

**For a description, see Workshops, p. 50*

SSPC 2015 featuring GREENCOAT
FEBRUARY 3-6, 2015
WESTGATE LAS VEGAS RESORT, LAS VEGAS, NV
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THURSDAY, FEB. 5

Morning — 8:30 to 10:30 a.m.

MINI SESSION 1: FAILURE ANALYSIS

• "Failure Analysis of Paints and Coatings for Wind Towers, T & D Pipeline and Utility Structures," by Mehrooz Zamanzadeh, Ph.D., MATCO Services, Inc.; 8:30 to 9:30 a.m.

In this introductory presentation, failure analysis methodology will be applied to the principal mechanisms by which paints and coatings fail during service.

MINI SESSION 2: INDUSTRY TRAINING AND CERTIFICATION PROGRAMS

• "What are SSPC-ACS 1, CAS, and ATT?" by Earl Bowry, PCS, Jotun Paints, Inc.; 8:30 to 9:00 a.m.

This presentation will discuss the practice of the ACS 1 Applicator Certification Standard (SSPC-ACS 1), and how SSPC's Coating Application Specialist (CAS) Certification Program complies with it. It will also cover how a contractor can acquire and use the SSPC Applicator Training Specialty Module CDs combined with the Applicator Train-the-Trainer (ATT) Program curriculum, to help employees meet the requirements of SSPC-ACS 1 and gain the CAS title.

• "Navigating the Protective Coating Industry as a Young Professional," by Kristin Leonard, PCS, Bechtel Corporation; 9:00 to 9:30 a.m.

Very few people enter the world of protective coatings intentionally, so it can be overwhelming trying to navigate the industry early in a career. As young professionals, many may wonder how to earn credibility in the extensive world of coatings. The presenter will discuss her path from a college graduate into the coatings engineering and construction world, outlining how finding mentors, gaining field experience and obtaining various SSPC industry certifications have shaped her career to date and answering questions other young professionals may have.

MINI SESSION 3: CORROSION IN CONCRETE

• "Design Considerations for Corrosion Protection of Anaerobic Digesters in Wastewater Treatment Plants," by Randy Nixon, Corrosion Probe, Inc.; 8:30 to 9:00 a.m.

This presentation will explain the basics of how digesters work chemically and demonstrate the conditions under which corrosion does occur when the operating conditions are not controlled adequately. It will also describe the author's experience with the various types of biosolids digesters including floating steel covered, fixed steel and concrete covered, German style, and egg shaped vessels.

• "Basics of Corrosion in Reinforced Concrete," by Fred Goodwin, BASF Construction; 9:00 to 9:30 a.m.

This presentation will discuss the properties of concrete, the causes

of concrete damage and deterioration, issues related to corrosion of reinforcing steel in concrete, and options to evaluate and reduce the effects of concrete deterioration.

MINI SESSION 4: GREEN INDUSTRIAL COATINGS

• "Creating More Sustainable Industrial Coatings: Driving VOCs of High Performance Waterborne Direct-to-Metal Coatings Below 50 g/L," by Leo Procopio, Ph.D., The Dow Chemical Company; 8:30 to 9:00 a.m.

This presentation introduces a new self-crosslinking acrylic technology for use in industrial DTM coatings, which deliver these desirable properties in a single binder. Performance in corrosion-resistant primers and DTM finishes under 50 g/L and for the protection of steel will be described, including a comparison with currently available commercial technologies.

• "Green Paints...From 'Paint is a Part of the Problem' To 'Paint is a Part of the Solution'," by Nawras Rimawi, Al-Jazeera Paints, Inc.; 9:00 to 9:30 a.m.

This presentation will discuss practical results for using some of the new generation of smart paints like formaldehyde-lock technology paints, green paint removers and antimicrobic sterilizing paints, and how much they would participate in being part of the solution.

INTERNATIONAL SPOTLIGHT SESSION

• "Global Environmental Regulations Drive New Technologies in Epoxy Coatings," by Marcelo Rufo, Air Products and Chemicals Brazil (followed by Q & A session); 8:30 to 9:30 a.m.

This presentation will review how global environmental regulations and initiatives such as LEED are impacting the development of new technologies in the industrial coatings market and, more specifically, the industrial epoxy market. An overview of technology developments driven by environmental regulations in many countries will be reviewed, starting from the need to develop low VOC and also the need for emission-free technologies.

Mid-Morning — 10:30 a.m.

SESSION 1: PANEL DISCUSSION

• "Women's Leadership Forum," moderated by Julie Hough, Trace Industrial Supply, LLC, with panelists Alison B. Kaelin, ABKaelin, LLC, Deborah Simmons Carboline Company, Gail Warner, PCS, Newport News Shipbuilding and Lydia Frenzel, Advisory Council; 10:00 a.m. to 12:00 p.m.

This panel discussion among women leaders in the corrosion and specialty coatings industry will include how to get to the top in business, smart negotiating tips, using your femininity as an asset, asking the right questions, finding the right path and job search tips for

women, creating your template for success, and breaking the glass ceiling.

SESSION 2: WORKSHOP

• "Proper Use of Coatings Inspection Instruments," by Matthew Fajt, KTA-Tator, Inc.; 10:00 a.m. to 12:00 p.m.
**For a description, see Workshops, p. 50*

SESSION 3: PANEL DISCUSSION

• "SSPC-SP 13/NACE No. 6, Surface Preparation of Concrete: Industry Standard or Industry Guideline?" moderated by Heather Stiner, PCS, SSPC; with panelists Vaughn O'Dea PCS, Tnemec Company, Inc.; Randy Nixon, Corrosion Probe, Inc.; Fred Gelfant, Stonhard, Inc.; and Fred Goodwin, BASF Construction Chemicals, Inc.; 10:00 a.m. to 12:00 p.m.

An informal roundtable meeting was held at SSPC 2014 to discuss the SSPC-SP 13/NACE No. 6 joint standard, centered on whether this standard should be replaced by individual surface preparation standards and converted to an industry guideline. This panel of concrete practitioners will offer their perspectives regarding the SSPC-SP 13/NACE No. 6 joint standard.

SESSION 4: GREEN EVOLUTION COATINGS

• "Methodology for Measuring Energy Savings by the Use of Highly Reflective Coatings," by Francisco Cortes, DuPont Titanium Technologies Mexico; 10:00 to 10:30 a.m.

This presentation will use the results of two tests to show that the use of highly reflective coatings is a very effective technique to improve the overall energy efficiency on residential buildings.

• "Why Green Solvents are Good for Your Business and Not Just the Environment," by Dave Pasin, TBF Environmental Technology; 10:30 to 11:00 a.m.

This presentation will examine what constitutes a green solvent, the differences between what are classed as green solvents, and their safety and use in a variety of applications which include formulation, surface preparation and cleaning.

• "'In Zinc We Trust?' - The Path to Novel Environmentally Friendly Corrosion Inhibitors," by Dr. Lars Kirmaier, Heubach GmbH; 11:00 to 11:30 a.m.

This presentation will demonstrate the strong effectiveness of a novel zinc-free anticorrosive pigment, not only in accelerated weathering tests, but also proved by modern electrochemical test methods.

• "Novel Waterborne Technology Paves a New Roadway for Alkyds," by Alan Toman, Reichhold, Inc.; 11:30 a.m. to 12:00 p.m.

This presentation will describe synthesis and formulation considerations highlighting the benefits that waterborne alkyd technology offers the traffic coatings market. Benchmarking studies against commercially available solvent and water-based pavement coatings that exhibit performance characteristics that make it a valid alternative to current technologies will be highlighted.

• "'Construction Drying' — The Economic and Environmental Benefits," by Mark D. Lebeck and Bruce Funderburgh, Sunbelt Rentals Industrial Climate Control; 12:00 to 12:30 p.m.

This presentation will visit the latest criteria in concrete drying to ensure compatibility and to minimize the hygroscopic properties of today's waterborne, environmentally compliant floor adhesives, gypsum board/sheetrock and paint drying to ensure a timely turnaround time, and monitored climate control to ensure a safe mold and airborne pathogen-free environment.

Afternoon — 3:00 to 5:00 p.m.

SESSION 1: INSPECTION

• "Methodology for Coated Infrastructure Inspection by Mobile Potentiostat," by Bobbi Jo Merten, Ph.D., U.S. Bureau of Reclamation; 3:00 to 3:30 p.m.

This presentation will focus on the most ideal circumstances for setting up and completing EIS testing in a single inspection. Variables to consider include coating type, exposure conditions, saturation level, access, and surface geometry/orientation. The mitigation of potential noise sources will also be addressed to ensure accurate data and interpretation.

• "Pull-Off Adhesion Testing OG Coatings — Improve Your Technique," by John Fletcher, Elcometer Limited; 3:30 to 4:00 p.m.

This presentation will investigate the effects of any deviation from the prescribed method in every aspect of the pull-off adhesion test. Each aspect will be examined in turn, the results tabulated and the potential effect on a valid adhesion test result will be discussed.

• "Replica Tape — Relating Three Surface Profile Parameters to Pull-Off Adhesion," by David Beamish, DeFelsko Corporation; 4:00 to 4:30 p.m.

This presentation will report on remarkable recent testing that compared numerous profiles with pull-off adhesion.

• "Paint Inspection from the Coating Manufacturer's Perspective," by Troy Fraebel, PCS, The Sherwin-Williams Company; 4:30 to 5:00 p.m.

This presentation will help attendees in understanding how QA and QC work together, how the parties work together, and how the resulting documentation will help assure a quality application, a satisfied customer, and a profitable project.

SESSION 2: COATING TYPES, PART II

• "Linings Testing for High Pressure and High Temperature Operations," by Yasir Idlibi, Ph.D., ADANAC Global Testing & Inspection; 3:00 to 3:30 p.m.

To address corrosion issues, material engineers look into either upgrading to expensive alloys or use protective coatings for high-pressure, high-temperature environments. This presentation investigates the suitability of coating systems of different chemistries for these applications.

• "Bio-Based Waterborne Floor Coatings with Enhanced Flow and Appearance," by Stephen Hellems, Nuplex Resins LLC; 3:30 to 4:00 p.m.

This presentation will discuss the development of a new castor oil-based polyol emulsion that can be used effectively in waterborne polyurethane applications. The formation, appearance of the system, flow, behavior, sealing and adhesion characteristics, surface roughness and pot-life of the formulations and the coating performance properties will be presented in detail.

• "Time, Money and Tank Linings," by Miles Buckhurst, Jotun A/S; 4:00 to 4:30 p.m.

This presentation will look into the possibility of saving time during the coating operation of tanks, but not at the cost of the performance of the coating. It will discuss how to realistically apply the coatings in such a way that the reliability is increased during operational time and yet allows the application process to be speedy and bring the tanks into service quickly.

• "Composite Coatings: Basics of Fiber Reinforced Polymers for Pipe Repairs," by David A. Hunter, PCS - Neptune Research, Inc. (NRI); 4:30 to 5:00 p.m.

The speaker will present information on composite coatings, a class of materials that are described as fiber-reinforced polymers (FRP) that consist of extremely strong tensile fibers saturated in a binding resin. The presentation will cover original development and their uses and applications.

SESSION 3: CONCRETE FLOOR PROTECTION

• "Using Forensic Science to Determine Causes of Failure of Polymeric Coatings," by Jon Asselanis, Applied Materials & Engineering, Inc.; 3:00 to 3:30 p.m.

This presentation will discuss the proper protocol for performing an initial on-site inspection, providing the laboratory with essential and accurate background information, and extracting, packaging and delivering samples to the testing facility. Participants will learn the difference between chemical and physical testing and what information or data can be collected from these tests and how it is used.

• "Moisture Test Methods, Comparisons, Commonalities and Dissimilarities," by Steve Schroeder, Crossfield Products Corp.; 3:30 to 4:00 p.m.

This presentation is based on a practical study that was performed in an effort to exemplify the various field conditions and obstacles encountered in performing moisture testing in typical field conditions. It will look at all the accepted standard methods and examines both the similarities and differences.

• "Understanding Concrete Coatings Adhesion Testing Standards and Procedures/Testing in Accordance with ASTM 7234," by Fred Gelfant, Stonhard, Inc.; 4:00 to 4:30 p.m.

There are many standards published for the testing of the adhesion of coatings, linings and floorings to concrete substrates. This presentation will examine how to select the correct test method, perform the test, and properly report the data.

• "The Definition and Cause of Osmotic Blistering in Resinous Floor Coatings," by Marcus Gray, Dur-A-Flex; 4:30 to 5:00 p.m.

This presentation will help define osmotic blistering as it relates to resinous coatings, explain the difference between moisture and osmotic blistering in regards to resinous coatings, explain soluble ions and salts, and define adhesion strength, osmotic force and preparation of the concrete slab.

SESSION 4: CORROSION PREVENTION IN THE MILITARY

• "Corrosion — It's a Matter of Choices," by Dr. Roger D. Hamerlinck, Office of the Assistant Secretary of the Army - Acquisition, Logistics and Technology; 3:00 to 3:30 p.m.

In this presentation, the speaker will discuss the question, "Why do we 'choose' to allow corrosion on our military equipment and facilities/infrastructure?" and explain why, "At the end of the day, our performance in the area of prevention and control of corrosion is the sum of all our choices." His conclusion is that there is an "acceptable" level of corrosion that has an "acceptable" impact (cost, availability, or safety) on our military equipment and facilities/infrastructure. Is that acceptable impact affordable?

• "Single-Component Polysiloxane: An Advanced Coating for Navy and Surface Ships Topsides," by Erick B. Iezzi, Ph.D., Naval Research Laboratory; 3:30 to 4:00 p.m.

This paper will discuss the laboratory qualification testing of a revised single-component polysiloxane topcoat, in addition to demonstrations on surface ships in several locations and under various conditions.

• "NSRP SP&C Panel Update," by Arcino Quiero, Jr., Newport News Shipbuilding; 4:00 to 4:30 p.m.

This presentation is an overview of the National Shipbuilding Research Program (NSRP) Surface Preparation and Coating (SP&C)

Panel's mission to reduce the cost of construction, maintenance, and repair of U.S. Navy ships. The Panel's "Specs to Decks" approach; research, evaluate, develop, and sustain current and emerging technologies that will reduce cost and maintain or enhance quality for coatings and corrosion control of new construction and repairs of U.S. Naval and commercial ships.

• "Use of Pre-Construction Primers in Marine Construction," by J. Peter Ault, PCS, Elzly Technology Corporation; 4:30 to 5:00 p.m.

SSPC is developing an industry guide document containing information regarding the use of pre-construction primers (PCP) on structural steel in shipbuilding. This presentation will cover the technical details contained in the document including background on the reasons to use and retain PCPs, the types of PCPs and their application and inspection, and the secondary surface preparation processes that are used when PCPs are retained in the final, compatible primary coating system.

FRIDAY, FEB. 6

Morning — 8:30 to 9:30 a.m.

MINI SESSION 1: SAFETY

• "Understanding the Breathing Air System in Abrasive Blasting," by Thomas Enger, MS, CSP, Chmm, Clemco Industries Corp.; 8:30 to 9:30 a.m.

This presentation will demystify OSHA compliance relating to respiratory safety and the breathing air system in abrasive blast operations by offering a simplified explanation of the components and regulations. Pertinent equipment certifications by NIOSH for respiratory safety and health as well as ANSI certifications for hardhat and hearing protection are also discussed.

MINI SESSION 2: DEHUMIDIFICATION

• "Getting to $0: Strategies for Reducing Climate Control Costs through New Technologies," by Russ Brown, Polygon US Corporation; 8:30 to 9:30 a.m.

Over the past 20 years, climate control services for blast and coat applications have become an accepted practice within the coatings industry. During that time, the equipment and services provided have changed at a lightning pace. The presenter will lead an interactive discussion on how the industry has changed over the years, innovations including green technologies and strategies for deciding on the most cost effective solutions.

MINI SESSION 3: FOOD GRADE PAINTS

• "Enhancing the Effectiveness of Food Grade Paint: Maximizing Safety & Reducing Corrosion," by Raza Baghpatee, Kopak Industries; 8:30 to 9:30 a.m.

This presentation will envision various predicaments and issues to enhance the effectiveness of environmentally responsible food grade paint, which helps in maximizing safety and reducing the risk of corrosion. It will consider the characteristics of food grade paint as well as enumerate the companies that produce food grade paint.

MINI SESSION 4: SOLUBLE SALTS

• "The Effect of Four Commercially Available Steel Decontamination Processes on the Performance of Internal Tank Coatings," by Michael Melancon, Chevron ETC Coatings SME; 8:30 to 9:30 a.m.

In this presentation, the speaker will focus on soluble salts contamination removal by commercially available decontamination processes in relation to internal tank lining coating systems and will directly compare effectiveness of four cleaning methods on the performance of three coating systems.

Mid-Morning — 10:00 a.m. to 12:00 noon

SESSION 1: COATING TESTING FOR THE MARINE INDUSTRY

• "Development of an ASTM Standard for Erosion Testing of Protective Coatings Systems," by David Tordonato, Ph.D., P.E., U.S. Bureau of Reclamation; 10:00 to 10:30 a.m.

This paper will detail the procedure developed by the U.S. Bureau of Reclamation in collaboration with the ASTM standards committee and provide some initial results from several coating types. It is expected that this standard will be useful in selection of coatings intended for raw water immersion service particularly in situations where there are entrained solid particulates in flowing water.

• "Evaluating Coatings for Immersion Service via Electrochemical Activity," by James A. Ellor, P.E., Elzly Technology Corporation; 10:30 to 11:00 a.m.

In immersion service, protective coatings act to reduce electrochemical activity at the metal/coating interface. Tracking this activity via the use of segmented panel testing appears to offer additional insight into coating performance that may aid in coating design and predicting longer-term performance. This presentation will recommend some additional performance standards for predicting coating performance.

• "The Problem with Meeting Dry Film Thickness Specifications," by John Fletcher, Elcometer Limited; 11:00 to 11:30 a.m.

This presentation will focus on an example of the problems currently being faced in meeting specified dry film thickness (DFT), which is deemed the most understood and most objective element of application. It will show that even this most basic aspect of the paint specification is neither well understood nor well specified.

• "Erosion Resistance Testing for Abrasion- and Cavitation-Resistant Coatings," by Hee Baek Lee, Hyundai Heavy Industries Co.; 11:30 a.m. to 12:00 p.m.

The rudder damage by cavitation erosion has been a serious problem in high speed container ships. In this study, several types of coatings were evaluated, and detailed

comparisons of two different test methods were performed. The result of this study will show that unsaturated polyester with the glass flake had the best cavitation erosion resistance among the candidates.

SESSION 2: FORMULATING COATINGS

• "The Futility and Folly of Seeking the Accelerated Corrosion Testing Holy Grail," by Carl Reed, International Paint LLC, and Kat Coronado, AkzoNobel; 10:00 to 10:30 a.m.

This presentation will look at the history of accelerated corrosion testing and some popular accelerated corrosion protocols. Also, mechanisms of corrosion and the variables that affect the corrosion process will be discussed, and the role of coatings in accelerated corrosion testing and the variability encountered in the different test protocols will be examined.

• "Is the Heat and Pressure of Formulating Coatings for the Oil and Gas Market Getting to You? A Simplified Approach to Formulating Coatings for High Temperature and Pressure Applications," by Andrew Recker, BASF Building Systems; 10:30 to 11:00 a.m.

This presentation will discuss how to formulate for high-performance properties — in particular, high temperature immersion applications with epoxy thermoset coatings and the impact of formulation additives on achieving this performance.

• "Formulating High Performance Coatings with Novel Adhesion Test Methods," by Yutao Yang, Ph.D., The Lubrizol Corporation; 11:00 to 11:30 a.m.

This presentation will explain the fundamental principles of adhesion, basic adhesion mechanisms, basic adhesion test methods for coatings, and the relationships between adhesion performance and coating composition

• "BPA Epoxide Inorganic/Organic Coatings," by Mark D. Soucek, University of Akron; 11:30 a.m. to 12:00 p.m.

This presentation will offer a survey of epoxide hybrid literature and will discuss how to prepare a hybrid coating as a primer and how to cure a hybrid coating. It will also offer a comparison of different epoxide hybrid coatings.

Afternoon — 3:00 to 5:00 p.m.

SESSION 1: WORKSHOP

• "Fall Protection Training," by Charlie Brown, Greenman-Pedersen, Inc.; 3:00 to 5:00 p.m.

**For a description, see Workshops, p. 50*

Session 2: SSPC Programs

• "SSPC Programs: Learn About What SSPC Has to Offer, " by Joe Berish, Jennifer Merck, Terry Sowers and Aimée Beggs, SSPC; 3:00 to 5:00 p.m.

Wrap up the week with the SSPC staff! Various SSPC staff will present information on the SSPC programs you use most. Learn the ins and outs of our QP programs, individual certification and training, corporate and individual membership programs and technical committees. All of your questions are welcome!

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Las Vegas is the Meeting Place for SSPC Committees

Various SSPC Committee meetings are scheduled to take place at SSPC 2015 featuring GreenCOAT. The following list provides committee names, meeting dates and times. All information is current as of press time. Visit sspc2015.com or contact Aimée Beggs, beggs@sspc.org, for more details.

Tuesday, Feb. 3

Standards Review Committee
8:30 to 10:30 a.m.

C.2 Surface Prep Steering Committee
1:30 to 3:00 p.m.

TG 417 Surface Prep Concrete Committee
3:30 to 5:00 p.m.

Wednesday, Feb. 4

New Standards for Concrete Surface Preparation
8:30 to 10:00 a.m.

C.1.14, TG 146 Thermal Spray
8:30 to 10:00 a.m.

International Chapters Meeting
10:00 to 11:00 a.m.

PCCP Advisory Open
10:00 a.m. to 12:00 p.m.

C.7.5 Texture of Concrete
10:30 a.m. to 12:00 p.m.

C.1.1 Paint 20 Revision TG
10:30 a.m. to 12:00 p.m.

PCCP Advisory Business
1:30 to 3:00 p.m.

C.1.3.C Epoxy Polyamide (PT 45 Revision)
1:30 to 3:00 p.m.
C.5.5 Platform Design
1:30 to 3:00 p.m.
NBPI Instructors Meeting
2:30 to 3:30 p.m.
C.2.19 AB 4 (Sponge) Revision
3:30 to 4:30 p.m.
C1.15 Revision of Guide 14
3:30 to 4:30 p.m.

Thursday, Feb. 5

Local Chapter Chairs Meeting
8:30 to 9:30 a.m.
C.8.0 Commercial Coatings Main
8:30 to 10:00 a.m.
Polymeric Floor Coating Advisory
8:30 to 10:00 a.m.
TG Revision of Paint 30 (Weld-Thru IOZ)
8:30 to 10:00 a.m.
C.8.1 Commercial Cleaning & Painting
10:30 a.m. to 12:00 p.m.
C.8.4 Commercial Air Barrier Coatings
10:30 a.m. to 12:00 p.m.
C.4.1 Revision PA 5 Maintenance
10:30 a.m. to 12:00 p.m.
C.8.2 Commercial Coating Materials
1:30 to 3:00 p.m.
C.8.3 Commercial Floor Coatings
1:30 to 3:00 p.m.
SSPC/NACE Corrosion Prevention
and Control Planning
1:30 to 3:00 p.m.
C.8.5 Commercial Contractor Qualification
3:30 to 5:00 p.m.
Bridge Coating Advisory
3:30 to 5:00 p.m.
C.1.7 Powder Coatings
3:30 to 5:00 p.m.

Friday, Feb. 6

SSPC/NACE TG 350/TG 006
8:30 to 10:00 a.m.
C.1.1 Zinc-Rich Coatings
8:30 to 10:00 a.m.
New Standards for Concrete Surface Prep
9:00 to 10:00 a.m.
TG 320, Applicator Qualification Standard
10:30 a.m. to 12:00 p.m.
C.2.18 Surface Prep of
Preconstruction Primers
10:30 a.m. to 12:00 p.m.
SSPC Instructor Meeting
12:30 to 1:30 p.m.
SRC Wrap-Up (Invitation Only)
1:30 to 3:00 p.m.
SSPC Instructors Committee (Invitation Only)
1:30 to 2:30 p.m.
Education Committee (Invitation Only)
3:00 to 4:00 p.m.
Coating System for Thermally
Sensitive Surfaces
3:30 to 5:00 p.m.

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Coating Industry Comes Together at SSPC 2015 Exhibit Hall

More than 125 companies from the protective coatings industry are set to exhibit their products and services in the SSPC 2015 exhibit hall. The following is a list of exhibitor descriptions, with contact information and booth numbers known to *JPCL* at press time. For further information, contact Kate Jurik, jurik@sspc.org.

Abrasives, Inc. manufactures Black Magic® coal slag and Dakota Gold™ silica sand. Rail access allows the company to deliver abrasives in the U.S. and Canada. Glen Ullin, N.D.; 701-348-3610; abrasivesinc.com. Booth 1130. *See our ad, p. 52.*

ABSS is an Australian designer and manufacturer of innovative abrasive blasting equipment and related products. Keilor East, Victoria, Australia; +61 3 9336 1961; abss.net.au. Booth 113.

Air Systems International provides customers with confined space ventilation, Grade D and E breathing air equipment and environmental products. The company can also customize or design products to safely solve customer's issues. Chesapeake, Va.; 757-424-3967; airsystems.com. Booth 210. *See our ad, p. 85.*

Allnex, a global company with $1.5 billion in sales, supplies resins and additives for architectural, industrial, protective, automotive and special purpose coatings and inks. Its product range entails innovative liquid resins and additives, radiation cured and powder coating resins & additives and crosslinkers for use on wood, metal, plastic and other surfaces. With 16 manufacturing and 13 research and technology support facilities throughout the world, the company provides responsive, local support to customers. Smyrna, Ga.; 687-255-4651; allnex.com. Booth 925.

ARID-DRY mobile desiccant dehumidifiers are manufactured by Controlled Dehumidification for temporary humidity control and constructive drying. Features include special filtration, cooling and heating; units are available in 600-25,000 CFM supply volumes. Brighton, Mich.; 810-229-7900; cdims.com. Booth 822. *See our ad, p. 109.*

ArmaKleen Company, makers of ARM & HAMMER products, manufactures ARMEX® Blast Media, a line of baking soda-based abrasives sold through a network of independent distributors worldwide. ARMEX can be used in several industrial service applications, from general cleaning to paint removal, in petrochemical, oil and gas field services, pulp and paper, and food processing industries. Use in either dry or wet blast systems to achieve a deep level of clean, with minimal waste disposal concerns. Princeton, N.J.; 800-332-5424; armex.com. Booth 310. *See our ad, p. 104.*

ARS Recycling Systems, LLC manufactures abrasive grit blasting and recycling systems, as well as dust collection systems, for the bridge, marine and storage tank refinishing markets. ARS recycling systems have an efficiency of 99.6%, providing a low operating cost while greatly reducing the amount of waste for disposal. ARS was chosen as the preferred Abrasive Recovery/Recycling System by 8 out of 10 contractors in a recent *JPCL* Contractor Opinion Poll. Lowellville, Ohio; 330-536-8210; arsrecycling.com. Booth 629. *See our ad, p. 45.*

Atlantic Design, Inc. is a full service engineering and manufacturing business that has over 30 years of experience dedicated to the blasting and coatings industry. Its engineering staff continuously researches and develops systems to deliver safe, affordable, and dependable equipment. The company sells and rents new and used equipment, as well as retrofits, upgrades, and troubleshoots any existing equipment. Abingdon, Md.; 410-335-1400; calladi.com. Booth 133. *See our ad, p. 68.*

Barton International supplies high-performance garnet abrasives for a wide variety of blasting applications. Its Mil-Spec- and CARB-approved blasting abrasives provide superior health and environmental safety and maximum performance for all applications. Garnet abrasives are harder, heavier and more durable than other blast abrasives, and Barton offers a variety of grades to match customers' project requirements. Glen Falls, N.Y.; 800-741-7756; barton.com. Booth 1024. *See our ad, p. 89.*

Bellemare Group specializes in the manufacture, distribution and sale of abrasive and mineral products for surface preparation and high pressure sandblasting. Trois-Rivières, Québec, Canada; 819-379-2535; groupebellemare.com. Booth 1022.

Binks offers fluid handling and spray finishing equipment solutions for protective coatings applications, spray guns, pumps, 2k, accessories, hose, clean air coalescers, filters, and

Photo courtesy of SSPC.

pressure tanks. Glendale Heights, Ill.; 630-237-5169; binks.com. Booth 217.
See our ad, p. 83.

Blastrac. Oklahoma City, Okla.; 800-256-3440; blastrac.com. Booth 1033.
See our ad, p. 104.

Bullard, founded in 1898, manufactures high-quality personal protective equipment that is marketed worldwide. Product lines include hard hats, face shields, respirators, air quality equipment, fire and rescue helmets and thermal imagers. Durability, comfort, safety, quality and innovation are hallmarks of every Bullard product line. Cynthiana, Ky.; 859-234-6611; bullard.com. Booth 103.
See our ad, p. 73.

Carboline Company offers a global line of high performance coatings, linings, and fireproofing products for steel and concrete protection. For over 60 years, Carboline has combined innovative product development with unparalleled technical knowledge. Its products are both applicator-friendly and owner-preferred. St. Louis, Mo.; 314-644-1000; carboline.com. Booth 403.
See our ad, inside front cover.

CESCO/Aqua Miser supplies abrasive blasting equipment, paint spray equipment and safety equipment and manufactures the ultra-high-pressure water blaster "Aqua Miser." CESCO is capable of supplying any type of equipment or supplies necessary to make a surface preparation and coatings project successful. Charleston, S.C.; 843-760-3000; blastandpaint.com. Booth 609.

Chlor*Rid International Inc. provides soluble salt information, CHLOR*TEST field test kits, soluble salt removal products, the HOLD*BLAST surface passivator, and education for surface preparation. Chandler, Ariz.; 480-821-0039; chlor-rid.com. Booth 713.

CJ Spray, Inc. Eagan. Minn.; 651-455-0880; cjspray.com. Booth 136.

Clemco Industries Corp. manufactures abrasive blast equipment and related products, including portable blast machines, specialty blast products, operator safety equipment, blast cabinets, recovery systems and blast rooms. Washington, Mo.; 636-239-0300; clemcoindustries.com. Booth 309.
See our ads, pp. 64 and 102.

***CoatingsPro* Magazine** offers an in-depth look at coatings based on case studies, successful business operation, new products, industry news and the safe use of coatings and equipment. San Diego, Calif.; 858-768-0825; coatingspromag.com. Booth 933.

Cold Jet Dry Ice Cleaning offers environmental cleaning and surface preparation with dry ice media. Loveland, Ohio; 513-831-3211; coldjet.com. Booth 211.

CSI Services, Inc. is a third-party, SSPC QP 5-certified coating inspection firm that provides consulting, inspection, and testing services to the coatings industry. Santa Clarita, Calif.; 877-274-2422; csiservices.biz. Booth 811.

Dampney Company, Inc. manufactures specialized industrial and heat resistant coatings for the petrochemical, power generation and OEM markets. Thurmalox® products are designed to provide heat and color stability for a wide range of metals up to 1,600 F (871 C). Thurmalox is a unique silicone resin technology, which allows for ambient or hot applied installations to avoid costly downtime of assets. Everett, Mass.; 617-389-2805; dampney.com. Booth 322. *See our ad, p. 106.*

DeFelsko Corporation manufactures PosiTector 6000, PosiTest, and PosiPen coating thickness gages and inspection instruments including surface profile gages,

adhesion testers, dew point meters, and wall thickness gages. Ogdensburg, N.Y.; 315-393-4450; defelsko.com. Booth 303.
See our ads, pp. 13, 55, 57 and 103.

Dehumidification Technologies, LP (DH Tech) provides temporary humidity and temperature control solutions to multiple industries in the U.S., Canada, Australia and Thailand. DH Tech has an experienced and highly trained technical staff, and owners Ken Armstrong and Brian Battle work closely with employees to deliver unparalleled customer service. Houston, Texas; 713-939-1166; rentdh.com. Booth 923. *See our ad, p. 72.*

Denso North America Inc., a subsidiary of Winn & Coales International, manufactures a full range of fast-cure, high build epoxies for a variety of above and below ground corrosion protection applications, including hand or spray-applied Protal protective pipeline coatings. Houston, Texas; 281-821-3355; densona.com. Booth 908. *See our ad, p. 74.*

DESCO Manufacturing Co., Inc. manufactures dust-free surface preparation tools and critical filtration vacuums designed to remove and contain lead, asbestos, silica and beta hot spot decontamination with minimal secondary engineering controls. Rancho Santa Margarita, Calif.; 800-337-2648, descomfg.com. Booth 825.

Detroit Tarp Inc. has manufactured tarps, covers, and custom enclosures for 50 years. It will display materials used nationwide for containing lead from abatement projects, overspray, weather enclosures for construction projects and tarps for all needs. Romulus, Mich.; 800-457-5054; detroittarp.com. Booth 428.

Dex-O-Tex by Crossfield Products Corp. develops polymeric and cementitious construction chemistries designed to repair, protect and beautify commercial, industrial and institutional decks, floors and walls. Products include acrylics, epoxies, urethanes and cementitious systems; decorative and functional floor and wall coating systems; chemical, slip and temperature resistant floor and coating systems; electro-static, dissipative and conductive flooring systems; underlayments, waterproofing membranes and repair systems; promenade and roof decking; parking deck surfacing and sport surfacing systems; moisture vapor transmission mitigation systems, and marine deck coverings. Rancho Dominguez, Calif.; 310-886-9100; dexotex.com. Booth 227.

DoD Office of Corrosion Policy and Oversight endeavors to minimize the impact of corrosion to our military's assets and ultimately to the DoD mission. Arlington, Va.; 315-339-7009; corrdefense.org. Booth 1127.

Doosan Portable Power has over 100 years of manufacturing expertise and application experience. Construction equipment includes mobile generators, air compressors, lighting systems and light compaction equipment. Statesville, N.C.; 704-883-3500; doosanportablepower.com. Booth 233.

DRYCO, LLC provides industrial climate control for the blasting and coating industry, specializing in desiccant and ArcticDRY mechanical dehumidifiers, cooling, heating and temporary power. Downers Grove, Ill.; 866-379-2600; drycogroup.com. Booth 812.
See our ads, pp. 48 and 105.

Dumond Chemicals manufactures environmentally friendly but highly effective industrial and marine coating removers, graffiti removers and masonry cleaners. Malvern, Pa.; 609-655-7700; dumondchemicals.com. Booth 1230.

DUSTNET by EMI International is a liquid dust suppressant. Applied at only 40 ounces per ton of dried material, DUSTNET will control 97% of dust in normal transfer operations and 76% in actual blasting operations. DUSTNET has no negative effect in adhesion of coatings. Pensacola, Fla.; -380-6214: dustnet.com. Booth 429.

Eagle Industries services the industrial painting industry with containment and ventilation solutions, including containment tarps, shrink wrap, scaffold sheeting, paint screens, ventilation equipment, surface preparation tools, dust collectors, industrial vacuums and more. The company has warehouses on the east coast, west coast, and Gulf coast. New Orleans, La.; 504-733-3510; eagleind.com. Booth 511.
See our ad, p. 58.

Elcometer will showcase and demonstrate its entire line of inspection equipment and software for protective coatings and NDT inspection, including corrosion gauges, flaw detectors, adhesion testers, coating thickness gauges, surface profile gauges and climate/humidity gauges. Rochester Hills, Mich.; 248-650-0500, elcometer.com. Booth 411.
See our ads, pp. 3, 65 and 79.

EnTech Industries has been manufacturing high quality field tested mobile and skid dust collectors for over 20 years. The collectors are offered in diesel, electric and diesel/electric combination, in capacities from 2,000 cfm through 60,000 cfm. East Grand Forks, Minn.; 218-773-6505 ; entechindustries.com. Booth 829. *See our ad, p. 75.*

Ervin Industries produces carbon steel and stainless steel metal abrasive sold under the brand names Amasteel and Amacast. It offers application assistance and on-site training. Ann Arbor, Mich.; 734-769-4600; ervinindustries.com. Booth 1123. *See our ad, p. 84.*

Fischer Technology Inc. provides specific solutions for the precise measurement of corrosion protection coatings according to international standards IMO, PSPC and SSPC-PA 2. Fischer Dual and Eddy current probes feature a patented conductivity compensation for measuring various aluminum alloys without the readings being affected by the conductivity. Windsor, Conn.; 860-683-0781; fischer-technology.com. Booth 203.
See our ads, pp. 60 and 61.

FS Solutions has nearly 100 years of collective experience in industrial vacuum loading, sewer and catch basin cleaning, vacuum excavation and industrial high-pressure waterblasting. Elgin, Ill.; 847-622-7044; fssolutionsgroup.com. Booth 1003.

Geoblaster Equipment manufactures and distributes wet blast equipment while providing customer service and support. Dunnville, Ontario, Canada; 905-774-1410; geoblaster.com. Booth 102. *See our ad, p. 103.*

GMA Garnet (USA) Corp. supplies garnets for the surface preparation industry. Material is available through its global distribution network and warehouses. Houston, Texas; 832-243-9300; garnetsales.com. Booth 302.
See our ad, p. 91.

Grace Distributing Inc. is the exclusive U.S. distributor of LifeGuard Active Rust Primer, a waterborne, 2%-VOC acrylic copolymer universal marine primer that converts rust as it primes any surface profile. Charlottesville, Va.; 434-825-1529; gracedistributing.com. Booth 819.

Graco Inc. manufactures dependable and accurate protective coatings equipment for spraying coatings and foam on the toughest materials, including plural-component proportioners, spray guns, transfer pumps and accessories. Minneapolis, Minn.; 612-623-6639; graco.com. Booth 1025. *See our ad, p. 102.*

Green Diamond Sand Products offers environmentally safe, moisture-free abrasives with no free silica. Durability and sharp edges provide faster cutting. Custom blends can be used in numerous applications. Riddle, Ore.; 541-874-3111; greendiamondsand.com. Booth 1030. *See our ad, p. 76.*

Greener Blast Technologies, Inc. manufactures a surface preparation system capable of blasting at pressures ranging from 18–100 psi, making nearly any job achievable. The simplicity of this unit makes it easy for all to use in countless applications. The Greener Blast System saves time, money, and energy. Tyngsboro, Mass.; 978-857-0473; greenerblast.com. Booth 105.

Greenman-Pedersen, Inc. (GPI), an engineering and construction services firm, specializes in protective coatings design, management, and inspection services for governmental and private clients. Affiliate companies include GPI Southeast, Underwater Engineering Services, and Corrosion Control Consultants & Laboratories. GPI and GPI Southeast are SSPC QP-5 certified firms. Tampa, Fla.; 813-632-7676; gpinet.com. Booth 312. *See our ad, p. 105.*

Harsco Minerals has been recycling by-products to minimize landfilling since the 1930s, and producing the original Black Beauty® abrasives (coal slag) for nearly 80 years. Harsco also offers Black Beauty® Iron (copper slag) and Black Beauty® Glass (crushed glass) abrasives. Harsco's high quality, chemically inert, low free silica, and low dusting abrasives are utilized in a wide range of applications. Mechanicsburg, Pa.; 888-733-3646; blackbeautyabrasives.com. Booth 916.

HippWrap Containment specializes in shrink-wrap containment enclosures for protective coatings, asbestos and weather protection projects. The company offers creative solutions to containment problems. San Diego, Calif.; 800-362-4477; hippwrap.com. Booth 809. *See our ad, p. 80.*

HoldTight Solutions Inc. manufactures HoldTight®102 Salt Remover/Flash Rust Inhibitor. It is non-hazmat and biodegradable

and can be dissolved in water to pressure wash any surface, prevent rust, and degrease. Houston, Texas; 713-266-9339; holdtight.com. Booth 703.
See our ads, pp. 69 and 103.

HRV Conformance Verification Associates provides global, cost-effective quality assurance inspection services, including steel fabrication, precast/prestressed concrete fabrication, coatings and non-destructive testing inspection, to both public and private entities. Specializing in the bridge and highway construction industry, HRV currently works with numerous departments of transportation and other authorities throughout the U.S.. Other industries served include commercial buildings, water and wastewater, power, oil and gas, rail and transit, and sports and entertainment facilities. Pittsburgh, Pa.; 412-788-2522; hrvinc.com. Booth 824.

Indian Valley Industries manufactures containment tarps for lead blast media, dust, overspray, and pollution control on waterways, bridges, and tanks for any industrial coatings and sandblasting operations. Johnson City, N.Y.; 607-729-5111; iviindustries.com. Booth 420.
See our ad, p. 53.

Industrial Vacuum Equipment Corp. manufactures the Hurricane line of industrial vacuum loaders. It sells and rents vacuums and dust collectors from locations through North America, including Canada. Ixonia, Wis.; 920-261-1136; industrialvacuum.com. Booth 529.
See our ad, p. 112.

International Marine & Industrial Applicators, LLC (IMIA) has extensive surface preparation and painting experience in the commercial shipbuilding industry. IMIA has the equipment, seasoned deckplate supervision and mechanics, as well as rigorous corporate safety and quality programs and financial strength, to comprehensively support its customers' preservation needs. Spanish Fort, Ala.; 251-626-3625; imiallc.com. Booth 1109.

International Paint LLC is a global manufacturer of coatings, linings and fire protection. With trusted brands such as Devoe Coatings, Enviroline, and Ceilcote, the company provides high-quality in corrosion protection. These high-performance coatings are now available through a network of International Paint Protective Coatings Centers located throughout North America. Houston, Texas; international-pc.com. Booth 1015. *See our ad, p. 63.*

JAD Equipment Co. Inc. will be showcasing painting, sandblasting, safety, lighting, and other inventory used in the blasting and painting industry. The company will also have a few new products. Youngstown, Ohio; 330-746-6100; jadcousa.com. Booth 424.

Jotun Paints, Inc. helps protect property by providing solutions that not only enhance the appearance of an asset, but also ensure long-lasting durability. Jotun's range of paints and coatings are designed to meet the latest industry standards and developed with sustainability in mind. Its specialties include premium decorative paints for long-lasting and beautiful finishes, and coatings for corrosion and fouling protection of metal substrates and passive fire protection of steel. Belle Chasse, La.; 504-394-3538; jotun.com. Booth 905.
See our ad, p. 92.

Kennametal, Inc. is a North American company that provides high-production abrasive blasting nozzle solutions for most every blasting need. It offers a selection of conventional and specialty blast nozzle designs covering a variety of wear-resistant hard materials. Be sure to investigate its XL Performance nozzle, which offers contractors increased productivity gains without additional capital investment. Traverse City, Mich.; 231-946-2100; kennametal.com. Booth 209.

Kleen Blast Abrasives & Equipment, a division Of CanAm Minerals, Inc., has distributed abrasives, equipments and parts for the coatings industry in the western U.S. for over 50 years. Danville, Calif.; 800-553-3625; kleenblast.com. Booth 803.

KTA-Tator, Inc. (KTA) is a consulting engineering firm founded in 1949. KTA's specialties include coatings and corrosion engineering and inspection; steel and concrete fabrication inspection; field and laboratory coatings failure analysis; environmental, health and safety consulting; and contract administration for maintenance and construction activities. KTA helps commercial owners, facility managers and engineering partners properly engineer and oversee the protection and maintenance of building assets. KTA also distributes a complete line of inspection and monitoring equipment, and provides a number of specialized Quality Assurance/Quality Control and workplace safety training courses. Pittsburgh, Pa.; 412-788-1300; kta.com. Booth 709.
See our ad, p. 77.

Larson Electronics has built portable industrial lighting and power distribution solutions since 1973. With a focus on explosion-proof lights, high powered LED illumination, LED area lighting and 3-phase power distribution systems, Larson Electronics products can be found in the oilfield, paint spray booths, manufacturing facilities and military bases around the world. Kemp, Texas; 903-498-3363; larsonelectronics.com. Booth 223.

Luoyang HongFeng Refractories & Abrasives Co., Ltd. (HRAC) is an experienced manufacturer of blasting media in China. Its products include aluminum oxide brown/white in macrogrits or microgrits, alumina-zirconia, general garnet material, waterjet garnet material, glass beads, glass sand, steel shot, steel grit and silicon carbide. Luoyang, China; hongfeng-abrasives.com. Booth 813. *See our ad, p. 104.*

Marco is a single-source solution for providing innovative and reliable products and services to the surface preparation industry, including abrasives; air-blasting equipment; engineered systems; painting, rental, and safety equipment; and service and repair. Davenport, Iowa; 563-324-2519; marco.us. Booth 503.

Max Access, Inc. Houston, Texas; 866-318-6465; mac-access.com. Booth 1032.

MetalCrafts, LLC offers a full line of rigging supplies at wholesale pricing for your project needs, specializing in designing and fabricating complete containment systems for any bridge or water tank. Youngstown, Ohio; 330-793-2178; metalcraftsyng.com. Booth 122.

Midsun Specialty Products, Inc. manufactures self-fusing silicone tape for corrosion prevention, weatherproofing and insulation. Midsun also distributes and installs animal outage mitigation, silicone coatings for

flashover protection and corrosion control within the power distribution industry and other commercial industrial markets. Berlin, Conn.; 860-378-0111; midsunspecialtyproducts.com. Booth 1034.

Minerals Research & Recovery, Inc. (MRI) has produced blasting abrasives since 1980. MRI's Sharpshot is the only ambient-cooled copper slag sold in the United States today. In recent tests, Sharpshot HP has outperformed its competitors, cutting faster, producing less dust and using less material. Tucson, Ariz.; 520-748-9362; mrrinc.com. Booth 1103. *See our ad, p. 94.*

Mohawk Garnet, Inc. produces garnet abrasives for all surface preparation and water jet cutting needs. Wahnapitae, Ontario, Canada; 705-694-5783; mohawkgarnet.com. Booth 610. *See our ad, p. 71.*

Moisture Control Company LLC rents and sells portable air conditioning and dehumidification equipment. Baton Rouge, La.: 225-293-6226; mcc-dh.com. Booth 208.

Monarflex by Siplast offers Super T-Plus and Super T-Plus Flamesafe scaffold sheeting systems in several roll lengths that are easy to install, durable, and have a patented grommet system. Irving, Texas; 469-995-2227; monarflexusa.com. Booth 325.

MONTI Tools. Houston, Texas; 832-623-7970; monti-tools.com. Booth 1009. *See our ad, p. 93.*

Montipower will showcase the MBX Bristle Blaster, a powered surface preparation tool that removes corrosion, scale, and coatings; imparts a 3-mil surface profile; and cleans to a near-white metal blast. The tool is designed for spot repairs and for jobs where abrasive blasting is prohibited. Manassas, Va.; 703-396-8777; mbxit.com. Booth 202. *See our ad, p. 66.*

NACE International, The Corrosion Society, focuses on corrosion control and provides standards, training, conferences, and publications that address corrosion issues. Houston, Texas; 281-492-0535; nace.org. Booth 935. *See our ad, inside back cover.*

NASA-Kennedy Space Center (KSC)'s Technology Transfer Office actively promotes partnerships between industry, academia and other government agencies to help develop and commercialize products based on KSC technologies, including technologies in the areas of corrosion prevention, detection and control. Kennedy Space Center, Fla.; 321-861-7258; technology.ksc.nasa.gov. Booth 120.

National Center for Education & Research on Corrosion & Materials Performance (NCERCAMP). University of Akron, Akron, Ohio; uakron.edu/corrosion. Booth 1117.

National Equipment Corp. will display its Neco Blast Couplings in addition to its complete product line. Brenham, Texas; 979-830-8030; hosecoupling.com. Booth 212.

NexTec Inc./Pre Tox markets PreTox 2000, a system for rendering lead waste non-hazardous during abatement. The system works with all standard removal methods including abrasive and mechanical. Dubuque, Iowa; 800-338-8296; pretox.com. Booth 1105. *See our ad, p. 51.*

Novatek Corp. manufactures critical surface preparation equipment and portable air filtration systems for hazardous and non-hazardous environments. The company will feature its portable air filtration systems, dustless needle scalers, rotary peen prep tools, hand grinders and HEPA-filtered vacuums. Exton, Pa.; 610-363-7800; novatekco.com. Booth 321. *See our ad, p. 23.*

Olimag Sand, Inc. is a large, eastern Canadian producer of non-toxic abrasive for abrasive blasting. Its synthetic olivine JETMAG is produced in a rotary kiln at 2,300 F. Thetford Mines, Québec, Canada; 418-338-3562; olimag.com. Booth 727.

Opta Minerals, Inc. has provided high-quality, non-silica abrasives and services to the abrasive blast cleaning industry for more than 130 years. Its 17 locations across North America can meet all blasting abrasive needs. Waterdown, Ontario, Canada; 905-689-7361; optaminerals.com. Booth 528. *See our ad, p. 113.*

Pacific Dust Collectors and Equipment, Inc. provides work on aged wood beams, brick, architectural concrete, barges, coating removal, Dunn Blasting, epoxy, fire damage, heavy duty coatings, heavy equipment, lead removal and pools. Damascus, Ore.; 503-318-3860. Booth 936.

Painters and Allied Trades LMCI focuses on industry programs that enhance the market share and work opportunities of industry partners, the IUPAT, and its signatory employers. It specializes in productive labor management relations. Hanover, Md.; 410-564-5860; lmcionline.org. Booth 1021.

Polygon provides dehumidification, heating and cooling services and equipment for coating applications. North Andover, Mass.; 800-422-6379; polygongroup.com. Booth 308. *See our ad, p. 94.*

Polyurea Development Association (PDA) is the trade association for the global thick-film high performance elastomeric industry. The backbone of PDA is polyurea, its development and its application. The association also welcomes adjacent technologies like urethanes and hybrids that have similar uses, as well as related primers and topcoats. Kansas City, Mo.; 816-221-0777; pda-online.org. Booth 1216.

PPG Protective and Marine Coatings (PMC) is a leader in protective and marine coatings, constantly striving to deliver innovative and fit-for-purpose products to its customers in the energy, infrastructure, and marine markets. PPG PMC's Amercoat®, Amerlock™, PSX®, and Sigma Coatings™

lines are used to protect high-profile projects in harsh conditions. Pittsburgh, Pa.; 412-434-3275; ppg.com. Booth 603.
See our ad, p. 78.

Pro-Tect Plastic & Supply, Inc. is a full service supplier of premium shrink wrap and installation accessories used for special coatings, EIFS systems and exterior coatings on tanks, buildings, bridges, ship repair, lead/asbestos abatement and project weatherization. Jacksonville, Ore.; 844-899-9727; shrinkwrapcontainments.com. Booth 1131.

PTQ Safety LLC manufactures painters' safety goggles that feature a comfortable, multi-lens benefit that allows quick change of the lens. The high-impact, ventilated, anti-fog lenses keep the user safe from debris and potential obscuring of view due to fog. Houston, Texas; 832-582-8716; ptqsafety.com. Booth 111.

Rapid Prep, LLC is a full service provider of steel surface preparation equipment. North Kingston, R.I.; 877-529-2124; rapidprep.com. Booth 628.

Raven Lining Systems has been providing innovative solutions for corrosion, erosion and I&I in water and wastewater infrastructures for more than 20 years. Broken Arrow,Okla.; 800-324-2810; ravenlining.com. Booth 1214.

Rhino Linings Corp. has been developing top-quality, proprietary, high-performance polymers based on polyurethane, polyurea and epoxy formulations since 1988. Its protective coatings products lead the spray-on lining market for industrial, commercial, and retail applications. San Diego, Calif.; 800-747-6966; rhinoliningsindustrial.com. Booth 109.

Ring Power Systems Corp. supplies new and used air compressors, air tools, and air compressor parts and services throughout Florida. It also supplies Sullair, Atlas Copco, and Hurricane air compressors, tools, and parts throughout the U.S. St. Augustine, Fla.; 904-494-1274; compressedair.ringpower.com. Booth 229.

RotoTexx's Pad-Eye Containment Blast System is designed for shipboard pad-eye maintenance when open air blasting or large

containments are prohibited, illogical or cost inefficient. It cleans effectively while containing dust and minimizing clean-up and exposure to dust and unsafe noise levels. Fresno, Texas; 800-231-2085; rototexx.com. Booth 723.

Rustibus, Inc. Houston, Texas; 832-203-7170; rustibus.com. Booth 924.

SAFE Systems Inc. provides manufacturing, engineering, sales, parts, technical support and service for its full line of U.S.-built portable equipment and fixed blast facilities. Standard or custom designed equipment for blasting, recovery, classification, and dust collection maximize flexibility and customers' return on investment. Kent, Wash.; 425-251-8662; safesys.com. Booth 324.
See our ad, p. 62.

Safety Lamp of Houston is the North American distributor of Wolf Safety Lamp Co., specializing in portable pneumatic, LED and fluorescent lighting solutions for all wet and hazardous areas. Humble, Texas; 281-964-1019; safetylampofhouston.com. Booth 913.
See our ad, p. 105.

Safway Services, LLC manufactures engineered suspended access systems for use on bridges, buildings, offshore platforms, and special structures. It also sells and rents to contractors. Scotia, N.Y.; 518-381-6000; safway.com. Booth 127. *See our ad, p. 81.*

Sand Express produces high quality processed sands and aggregates. Its capabilities include raw sands, industrial sands and abrasives. The company services industrial and commercial customers throughout the Gulf coast region and the central U.S. Columbus, Texas; 800-460-8210; sandexpress.com. Booth 922.

Sauereisen, Inc. is a third-generation manufacturer of a complete line of organic and inorganic corrosion-resistant materials of construction for new and rehabilitation applications. Its global presence is maintained with a network of technical sales representatives throughout the world. Manufacturing and warehouse facilities located in the U.S., Europe, the Pacific Rim and Latin America provide worldwide product distribution. Pittsburgh, Pa.; 412-963-0303; sauereisen.com.

Schmidt Engineered Abrasive Systems/Axxiom Manufacturing, Inc. manufactures Schmidt® engineered abrasive blast equipment and specialized systems that incorporate state-of-the-art metering and control systems with the high-quality workmanship. Products manufactured include air blast equipment and parts as well as vacuum systems, moisture separators, air dryers, after coolers and other storage and transfer systems. Fresno, Texas; 800-231-2085; schmidtabrasiveblasting.com. Booth 621.
See our ad, p. 18.

The Sherwin-Williams Company has manufactured a complete line of protective coatings and linings products for more than 150

years. It has an SSPC- and NACE-certified workforce trained in corrosion control, and a dedicated distribution network that ensures on-time delivery from 4,000 company-owned points worldwide. Cleveland, Ohio; 800-524-5979; sherwin-williams.com/protective. Booth 315. *See our ad, p. 67.*

Ship-2-Shore Corrosion Preventive Coatings require minimal preparation; dielectrically adhere to metal surfaces including galvanized and aluminum; displace moisture and scavenge oxygen molecules eliminating corrosion. Two formulations ensure all surfaces, cracks, joints, seams, welds and crevices are protected. Victoria, British Columbia, Canada; 250-477-7325; ship-2-shore.com. Booth 1204.

Simpson Strong-Tie manufactures a range of products to repair, protect and strengthen concrete, masonry, steel and wood. The line features high-performance coatings, repair mortars, epoxies and admixtures. Pleasanton, Calif.; 925-560-9000; strongtie.com. Booth 928.

Specialty Products Inc. (SPI). Lakewood, Wash.; 800-627-0773; specialty-products.com. Booth 118.

Spider, founded in 1947, is a large manufacturer and distributor of access and safety solutions in North America. It also sells, rents, and services powered suspended access platforms, material hoists, rigging and safety equipment, and it provides turnkey access solutions and OSHA Competent Person training. Seattle, Wash.; 877-774-3370; spider-staging.com. Booth 802.

Sponge-Jet, Inc. manufactures composite abrasives by bonding conventional abrasives with polyurethane sponge to create dry, recyclable, low-dust, and low-rebound Sponge Media™ abrasives that accelerates blasting and painting operations. High-production, composite-abrasive blasting and recovery systems also are offered. Newington, N.H.; 603-610-7950; spongejet.com. Booth 817.

Sulzer Mixpac USA, Inc. is a global manufacturer of innovative packaging, dispensing, mixing/spray systems for one- and two-component adhesives, sealants, and coatings; and industry-recognized Mixpac®, Quadro®, Mixcoat®, Statomix®, MK® cartridges, mixers, dispense guns, and spray tips. Salem, N.H.; 603-893-2727; sulzer.com. Booth 326.

Sunbelt Rentals Inc. has more than 475 locations nationwide and offers all of the equipment you need for surface preparation and coating projects including air compressors, air monitoring systems, desiccant dehumidifiers, dust collectors, generators and more. Fort Mill, S.C.; 800-667-9328; sunbeltrentals.com. Booth 816. *See our ad, p. 97.*

Tarps Manufacturing, Inc. offers custom containment tarps, building wraps, and ground tarps in strong nylon and poly mesh. Many

options are available in coated fabrics, FR, multi-layered tarps for sound reduction, and special printing. Meredosia, Ill.; 217-584-1900; tarpsmfg.com. Booth 327.
See our ad, p. 108.

Technology Publishing Company has published *JPCL* for three decades. It provides its audience with a daily eNewsletter (*PaintSquare News*) and a digital edition. Industry professionals focused on building performance and aesthetics read TPC's *Durability + Design*, its daily eNewsletter (*D+D News*), and a digital edition. TPC also offers PaintBidTracker, the only project lead service dedicated to coatings work. Pittsburgh, Pa.; 800-837-8303; technologypub.com. Booth 615.

Tesla NanoCoatings, Inc., an Ohio-based nanotechnology company, manufactures the Teslan® product line, a highly effective corrosion control coating for structural steel that uses carbon nanotube (CNT) technology to inhibit corrosion. North Canton, Ohio; 610-764-1232; teslanano.com. Booth 917.

Thomas Industrial Coatings, dedicated to serving clients through quality, timely workmanship and professional expertise, is a leader in large projects featuring industrial coatings, fireproofing, water jetting, lead abatement, and surface preparation. Pevely, Mo.; 636-475-3500; thomasindcoatings.com. Booth 1125.

Titan. Plymouth, Minn.; 763-526-5362; titantool.com. Booth 937.

Tnemec Co., Inc. makes high-performance coatings for industrial and architectural applications on steel, concrete, masonry, and other substrates. Kansas City, Mo.; 816-483-3400; tnemec.com. Booth 808.

Tractel Inc., Griphoist® Division offers a complete line of man-riding equipment products and fall protection equipment, including traction hoists, secondary brakes, manual hoists, modular platforms, suspension systems, and more. Norwood, Mass.; 800-421-0246; tractel.com. Booth 918.

Trask-Decrow Machinery (TDM) is a distributor of compressed air solutions, industrial pump and portable equipment for virtually any application. Trask-Decrow also provides installation, overhaul and repair of your current and new systems. Scarborough, Maine; 207-799-1538; tdmgo.com. Booth 329.
See our ad, p. 96.

TruQC offers cloud-based, job-site documentation for the iPad. Developed specifically for compliance with SSPC-QP and -QS certifications and requirements, the program provides customizable solutions for secure job-site documentation, including documentation storage, and accounting, and time-tracking practices designed to meet OSHA documentation requirements. Kirkwood, Mo.; 314-457-3920; truqcapp.com. Booth 911.

U.S. Coatings is a fast-growing supplier of industrial coatings in the United States. It offers formulation of coatings and service to the industrial professionals field. St. Louis, Mo.; 314-205-1500; uscoatings.com. Booth 926.

U.S. Minerals manufactures coal slag abrasive products from six production facilities. In 2013, a new copper slag processing facility will serve customers throughout the U.S. and Canada. Dyer, Ind.; 219-864-0909; us-minerals.com. Booth 1119. *See our ad, p. 95.*

Uni-Ram is a manufacturer of spray gun cleaners and solvent recyclers. Markham, Ontario, Canada; 905-477-5911; uniram.com. Booth 1031. *See our ad, p. 104.*

Van Air Systems designs and manufactures equipment that dries and purifies compressed air used for applying and removing coating systems. Lake City, Pa.; 814-774-2631; vanairsystems.com. Booth 823. *See our ad, p. 106.*

VersaFlex Incorporated formulates, manufactures and supplies pure polyurea coatings, liners and sealants for a wide variety of industrial, commercial and maintenance environments. It is a global company with offices in China, Europe, India, Malaysia and the Middle East. Kansas City, Kan.: 913-321-9000; versaflex.com. Booth 826. *See our ad, p. 114.*

Vitro Minerals. Conyers, Ga.; 678-729-9333; vitrominerals.com. Booth 1115.

W Abrasives manufactures carbon steel shot and grit. It partners technical expertise with high quality carbon steel shot and grit to achieve the most efficient cleaning process for your operation. The W Abrasives lineup includes high carbon steel shot and grit, stainless steel shot, and an innovative line of premium products specific to your cleaning needs. Bedford, Va.; 281-480-2341; wabrasives.com. Booth 931.

The Warehouse Rentals and Supplies (TWRS) carries a large selection of abrasive blasting and painting supplies including the safest and most popular brands of equipment. Greensburg, Pa.; 724-836-0808; twrs.com. Booth 729. *See our ad, p. 98.*

Wasser Coatings is a manufacturer and supplier of a range of high quality anticorrosion and protective coatings. Products include a variety of moisture cure urethanes and polyurea membranes. Auburn, Wash.; 800-627-2968; wassercoatings.com. Booth 1010. *See our ad, p. 82.*

Western Technology Inc. manufactures explosion-proof and low-voltage lighting, including the MightyLight LED product line and a complete line of deadman controls. Bremerton, Wash.; 800-654-5483; westerntechnologylights.com. Booth 717.

WIWA LP manufactures airless paint spraying equipment, including standard airless pumps, plural-component equipment, and other industrial systems. Alger, Ohio; 419-757-0141; wiwalp.com. Booth 910. *See our ad, p. 99.*

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EXHIBITORS AT-A-GLANCE

The following list of exhibiting companies and booth numbers is current as of press time. A list of exhibitor descriptions begins on p. 86.

Abrasives Inc. 1130
ABSS 113
Air Systems International, Inc. 210
Allnex 925
ARID-DRY 822
ArmaKleen Company 310
ARS Recycling Systems, LLC 629
Atlantic Design Inc. 133
Barton International 1024
Bellemare Group 1022
Binks 217
Blastrac 1033
Bullard 103
Carboline Company 403
CESCO/Aqua Miser 609
Chlor*Rid International, Inc. 713
CJ Spray, Inc. 136
Clemco Industries Corp. 309
CoatingsPro Magazine 933
Cold Jet Dry Ice Cleaning 211
CSI Services, Inc. 811
Dampney Company, Inc. 322
DeFelsko Corporation 303
Dehumidification Technologies, LP 923
Denso N.A. 908
DESCO Mfg. Co., Inc. 825
Detroit Tarp Inc. 428
Dex-O-Tex by Crossfield Products Corp. 227
DoD, Corrosion Policy and Oversight 1127
Doosan Portable Power 233
DRYCO, LLC 812
Dumond Chemicals 1230
DUSTNET by EMI International 429
Eagle Industries 511
Elcometer 411
EnTech Industries 829
Ervin Industries, Inc. 1123
Fischer Technology Inc. 203
FS Solutions 1003
Geoblaster Equipment 102
GMA Garnet 302
Grace Distributing 819
Graco Inc. 1025
Green Diamond Sand Products 1030
Greener Blast Technologies 123
Greenman-Pedersen, Inc. (GPI) 312
Harsco Minerals 916
HippWrap Containment 809
HoldTight Solutions Inc. 703
HRV Conformance Verification Associates 824
Indian Valley Industries 420
Industrial Vacuum Equipment Corp. 529
International Marine and Industrial Applicators, LLC (IMIA) 1109

Photo courtesy of SSPC.

International Paint LLC 1015
JAD Equipment Co. Inc. 424
Jotun Paints, Inc. 905
Kennametal, Inc. 209
Kleen Blast Abrasives & Equipment 803
KTA-Tator, Inc. (KTA) 709
Larson Electronics LLC 223
Luoyang HongFeng Refractories and Abrasives Co., Ltd. (HRAC) 813
Marco 503
Max Access, Inc. 1032
MetalCrafts, LLC 122
Midsun Specialty Products, Inc. 1034
Minerals Research & Recovery, Inc. 1103
Mohawk Garnet, Inc. 610
Moisture Control Company LLC 208
Monarflex by Sipblast 325
MONTI Tools Inc. 1009
Montipower, Inc. 202
NACE International 935
NASA-Kennedy Space Center (KSC) 120
NCERCAMP 1117
National Equipment Corporation 212
NexTec Inc./Pre Tox 1105
Novatek Corp. 321
Olimag Sand, Inc. 727
Opta Minerals, Inc. 528
Pacific Dust Collectors and Equipment, Inc. 936
Painters and Allied Trades LMCI 1021
Polygon 308
Polyurea Development Association (PDA) 1216
PPG Protective & Marine Coatings (PMC) 603
Pro-Tect Plastic & Supply, Inc. 1131
PTQ Safety 111
Rapid Prep, LLC 628
Raven Lining Systems 1214
Rhino Linings Corp. 109
Ring Power Systems Corp. 229
RotoTexx 723

SSPC 2015 featuring GREENCOAT
FEBRUARY 3-6, 2015
WESTGATE LAS VEGAS RESORT, LAS VEGAS, NV
www.sspc2015.com

SSPC 2015 DAILY SCHEDULE

All times are current as of press time. This schedule is subject to change. Please see the Onsite Guide for the final schedule.

Tuesday, Feb. 3	
8:00 a.m. to 7:00 p.m.	Registration Open
8:00 a.m. to 6:00 p.m.	Exhibitor Move-In
11:00 a.m. to 1:00 p.m.	Annual Meeting & Awards Luncheon
1:30 to 4:30 p.m.	Technical Sessions
2:30 to 4:30 p.m.	Young Professionals Meeting
5:30 to 7:30 p.m.	Welcome Reception

Wednesday, Feb. 4	
7:00 a.m. to 7:00 p.m.	Registration Open
7:00 a.m. to 3:00 p.m.	Exhibitor Move-In
7:30 to 10:00 a.m.	Facility Owners Peer Forum
8:30 to 10:00 a.m.	Technical Sessions
9:00 a.m. to 8:00 p.m.	Poster Session
10:30 a.m. to 12:30 p.m.	Technical Sessions

10:30 a.m. to 2:30 p.m.	Lake Mead Lunch Cruise (Guest Tour)
1:30 to 4:30 p.m.	Technical Sessions
3:00 to 5:00 p.m.	Poster Authors Available
5:00 p.m.	Exhibit Hall Ribbon Cutting
5:00 to 8:00 p.m.	Exhibit Hall Reception
8:00 to 10:00 p.m.	The After Party
Thursday, Feb. 5	
7:00 a.m. to 5:00 p.m.	Registration Open
8:00 a.m. to 12:00 p.m.	Mega Rust Mid-Year Meeting
8:00 a.m. to 12:00 p.m.	Eldorado Canyon Mine Tour
8:30 to 9:30 a.m.	Technical Mini Focus Sessions
8:30 to10:00 a.m.	International Forum
9:00 a.m. to 5:00 p.m.	Poster Session
10:00 a.m. to 12:00 p.m.	Technical Sessions
10:00 a.m. to 12:00 p.m.	Poster Authors Available
11:00 a.m. to 4:00 p.m.	Exhibit Hall Open
11:30 a.m. to 1:00 p.m.	Complimentary Lunch in Exhibit Hall
3:00 to 5:00 p.m.	Technical Sessions
Friday, Feb. 6	
7:00 a.m. to 2:00 p.m.	Registration Open
7:30 to 9:30 a.m.	PCS Breakfast
8:30 to 9:30 a.m.	Technical Mini Focus Sessions
9:00 a.m. to 3:00 p.m.	Poster Session
10:00 a.m. to 12:00 p.m.	Technical Sessions
10:00 a.m. to 3:00 p.m.	Exhibit Hall Open
11:30 a.m. to 1:00 p.m.	Complimentary Lunch in Exhibit Hall
1:30 to 3:00 p.m.	Exhibit Hall Closing Blast
3:00 to 7:00 p.m.	Exhibitor Move-Out
3:00 to 4:30 p.m.	Technical Sessions
7:00 to 9:00 p.m.	Closing Party

SSPC Organizational Members as of November 25, 2014

Industrial Affiliate Members
AkzoNobel
Bayer MaterialScience LLC
Bechtel Corporation
Benjamin Moore & Company
Binks Devilbiss Ransburg BGK
CAL INC
Carboline Company
Corrpro Companies, Inc.
Finishing Trades Institute (FTI)
Greenman-Pedersen, Inc.
ITW Polymers Coatings North America
KTA-Tator, Inc.
PPG Protective and Marine Coatings
Sherwin-Williams Company
Tnemec Company, Inc.

Council of Facility Owners
Patron Members
Air Force Civil Engineer Center
Air Products and Chemicals Inc.
Aker Philadelphia Shipyard
Arkansas Hwy and Transportation Dept
BAE Systems Hawaii Shipyards
BAE Systems Southeast Shipyards Jacksonville/Mayport, LLC
BAE Systems- Louisville
Bath Iron Works
Bay Ship & Yacht Co.
Bollinger Shipyard
Central AZ Water Conservation Dist.
Chevron Energy and Technology
Chicago Bridge & Iron Company
City Of Virginia Beach
Cives Steel Company, Midwest Division
Colonna's Shipyard, Inc.
Continental Maritime of San Diego
Energy Northwest
Fairhaven Shipyard
GE Power Conversion
Golden Gate Bridge Highway & Transportation District
Grant County Public Utility District
Hirschfeld Industries Bridge
Huntington Ingalls
Hyundai Samho Heavy Industries Co., Ltd
Illinois Dept. of Transportation
Indiana Department of Transportation
Kentucky Transportation Cabinet
Louisiana Department of Transportation & Development
Luminant
Lyon Shipyard, Inc.
Maine Department of Transportation
Marisco Ltd
Maryland State Highway Administration
Ministry of Transportation Bridge Office
Minnesota Department of Transportation
MODOT Maintenance Operations
Monroe County Water Authority
NASA-Kennedy Space Center
National Steel & Shipbuilding Co.
Naval Facilities Engineering Service Center
NAVSEA
Nebraska Public Power District
Norfolk Naval Shipyard Production Department
North Carolina DOT
North Florida Shipyards, Inc. Mayport
Naval Station
NYC School Construction Authority
Ohio Department of Transportation Central Office
Oklahoma Dept. of Transportation
Oro Loma Sanitary District
Pacific Gas & Electric Company
Pacific Ship Repair & Fabrication, Inc.
Pacific Shipyards International
Pearl Harbor Naval Shipyard & IMF
Pennsylvania Department Of Transportation Materials & Testing
Portsmouth Naval Shipyard Code 250
Puget Sound Naval Shipyard II
River Steel, Inc.
Southern Company
SSGC-PASC-NAVSEA
Steel Service Corporation
Sumitomo Heavy Industries Ltd.
SURFMEPP
Texas Department of Transportation
Textron Marine & Land Systems
Vigor Industrial LLC
Vigor Shipyards
Washington Suburban Sanitary Com.
West Virginia DOT Division of Highways

Patron Members
360 Construction Company Inc.
3rd Eye Inspections & Corrosion Control Services Ltd.
446 Painting LLC
A & K Painting Company, Inc.
A & S Industrial Coatings
A-1 Coatings Co.
A-1 Industrial Maintenance
A-PLUS Painting
A. W. Chesterton Company
ABC Applicators, Inc.
Aberfoyle Metal Treaters Ltd.
Ability With Innovation LLC (AWI)
Abrasive Blasting Service & Supplies Pty Ltd
Abrasives Inc.
ABS - American Bureau of Shipping
Abu Dhabi Construction Company LLC
ACME Industrial Piping
Adelphi Inc DBA G-Force Contracting
ADF Industrial Coating Inc.
Advance Industrial Coatings, LLC.
Advanced Industrial Services, Inc.
Advanced Marine Preservation, LLC
Advanced Painting Systems Inc.
Advanced Polymer Coatings, Ltd.
Advanced Recycling Systems, Inc.
Advantage Steel and Construction LLC.
AEIS, LLC
Aetna Bridge Company
Ahern Painting Contractors, Inc.
AIR Systems International
AKZO Nobel International Paint (SUZHOU) Co., LTD
Al-Jazeera Paints Academy
Alabama Painting, Inc.
Alaron Nuclear Services
All Painting Contractors Inc
All-Safe Industrial Services, Inc.
All-Set Corp.
All-Star Cleaning & Preservation
All-States Painting, Inc.
Allan Briteway Electrical Contractors, Inc.
Allied Painting Inc.
Allnex USA Inc.
AlpAccess
Alpha Painting and Construction Company, Inc.
ALS Industrial Services
American Industrial Hygiene Assoc.
American Suncraft Construction
American Tank & Vessel, Inc.
Americlean
Amherst Maintenance Inc.
Amstar of Western New York
Anchor Paint Mfg Co
Anka Painting Company, Inc.
Anticorrosivos Y Acabados AYA
APBN Inc.
Apollon Painting Company, Inc.
Applewood Painting Co.
Applied Coatings & Linings
Applied Corrosion Technology Co. LLC
Ar-Tech Coating Ltd.
Arena Painting Contractors, Inc. (APC)
Arid Dry by CDIMS
Arizona Coating Applicators, Inc.
Armour Painting & Cleaning Services Inc.
Arrow Construction Company, Inc.
Astron General Contracting Co., Inc.
Athab Qatar Engineering & Contracting Co. WLL
Atlantic Design Inc.
Atlantic Painting Co., Inc.
Atlas Painting & Sheeting Corp.
Atlas Steel Coatings Inc.
Automatic Coating Ltd.
Axxiom Manufacturing Inc
B&B Corporation
Babcock Canada Inc.
Barnes Painting
Barton International
BASF Corporation
Basic Industries, LTD.
Bass Rocks Construction Corporation
Bayer MaterialScience Trading (Shanghai) Co., Ltd
Baytown Painting, Inc.
Bazan Painting Company
Belzona Polymerics Limited
Bilton Welding & Manufacturing LTD.
BIS Salamis, Inc.
Black Bear Coatings & Concrete
Blastal Coatings Services, Inc.
Blastech Enterprises, Inc.
Blasting Experts Ltd.
Blasting Materials & Equipment
Blastline Institute (BISP)
Blastrac NA
Blastrite Pty. Ltd.

Blendex Industrial Corporation
BMP Sandblasting & Painting
Boville Industrial Coatings Inc.
Bridges R Us Painting Co., Inc.
Brother's Specialized Coating Systems Ltd.
Bryant Industrial Services LLC
Buckman Laboratories, Inc.
Bullard Co.
BYK Additives & Instruments
C & K Johnson Industries, Inc.
C.E. Adkins & Son Inc.
C.W. Beal, Inc.
Cabrillo Enterprises, Inc. DBA-R.W. Little Company
Cactus Coatings Ltd.
Caid Industries Inc.
Caldwell Tanks, Inc.
California Engineering Contractors, Inc.
Caligari Gerloff Painting, Inc.
Calvin, Giordano & Associates, Inc.
CanAm Minerals/Kleen Blast Abrasives
Cape Environmental Management Inc.
Capitol Finishes, Inc.
Cardolite Corporation
Carneys Point Metal Processing, Inc.
Carolina Painting Company, Inc.
Carr Coatings, LLC
Carr's Ind Blasting & Coating, LLC
Catamount Environmental, Inc.
CB Tech Services, Inc.
CCI Industrial Services
CCS Consulting Service, Inc.
CDV Industrial EIRL
Cekra Inc
Central Sandblasting Company, Inc.
Century Industrial Coatings
Certified Coating Specialists Inc.
CESCO/Aqua Miser
CFAN
Chariot Robotics
Chicago Area Painting Apprenticeship School
Chlomil, Inc. dba Phoenix Maintenance Coatings
Chlor*Rid International
Church & Dwight Company, Inc.
Cianbro Corporation
Civil Coatings and Construction Inc.
CJ Spray, Inc.
Clara Industrial Services Limited
Clark & Pattison (Victoria) Ltd.
Classic Protective Coatings, Inc.
CleanBlast, LLC
Cleanerblast Solutions, LLC
Clemtex, Inc.
CMAX, LLC.
CMP Coatings, Inc.
Coastal Cleaning LLC
Coating Services, Inc.
Coating Systems, Inc.
Coatings & Painting, LLC
Coatings Unlimited Inc. (WA)
Coatings Unlimited, Inc.
Coblaco Services, Inc.
Cold Jet LLC
Colonial Processing, Inc.
Colonial Surface Solutions, Inc.
Color Works Painting, Inc.
Commercial Sand Blasting & Painting
Commercial Sandblast Company
Commodore Maintenance Corp.
Consulex
Copia Specialty Contractor, Inc.
Corcon Inc
Corporacion MARA S.A.
Corporación Peruana de Productos Químicos SA.
Cosmos Industrial Services Inc.
County Group Companies
Crescent Coatings & Services, Inc.
Crown Painting, Inc.
CSI Services, Inc.
Custom Abrasives, LLC
Custom Engineering Co.
CV Associates NY
Cypress Bayou Industrial Painting, Inc.
D.H. Charles Engineering, Inc.
DACA Specialty Services
Dalian YuXiang
Dalseide Inc
Dampney Company, Inc.
Darran Green Sandblasting & Painting
Daubert Chemical Company
Davis Boat Works, Inc.
Dawson-Macdonald Company, Inc.
De Koning Groep
DeFelsko Corporation
Dehumidification Technologies, LP
Delta Coatings, Inc.
Demaco Corporation
Demos Painting & Decorating, Inc.
Denso North America Inc.
Derochie Painting Ltd.
Derrick Company Inc.
DESCO Manufacturing Company, Inc.
Desert Coating Solutions
Detroit Tarpaulin, Inc.
Devco Sandblasting & Industrial Coating, Inc.
Devox S.A.
Diamond Vogel Paint Company
Distribuidora Kroma S.A. de C.V.
Diversified Project Services International Inc. (DPSI)
Dixon Engineering, Inc.
DMA Floors
Doosan Portable Power
DRS Environmental Systems
DRYCO, LLC
Dubai Coating Limited
Dumond Chemicals
Dun-Right Services
Dunlap Industrial Coatings
Dur-A-Flex, Inc.
Dura-Bond Pipe, LLC
Dynamic Industrial Services Inc.
E. Caligari & Son, Inc.
E.J. Chris Contracting Inc
Eagle Industrial Painting LLC.
Eagle Painting & Maintenance Co.
Eagle Specialty Coatings
Earl Industries, LLC
EASE Painting and Construction
East Coast Painting & Maintenance, LLC
East Coast Repair & Fabrication
Eco CorFlex
EDCO-Equipment Development Co., Inc.
EDECO Peru S.A.C
Elcometer
Elektro-Physik USA, Inc.
Elite Contractors, Inc.
Elite Industrial, Inc.
EMI International LLC
EnDiSys
Endura Manufacturing Company Ltd.
ENECON Corporation
EnTech Industries, LLC
Environmental Coating Services LLC
Environmental Planning & Management, Inc.
EPAcoat, Inc.
EPMAR Corporation
Era Valdivia Contractors, Inc.
Erie Painting and Maintenance, Inc.
Ervin Industries
Euro Paint LLC.
Euro Style Management, Inc.
Examinetics, Inc.
Excalibar Minerals LLC
Excel Engineering & Contracting Co.
Extreme Coatings, Inc.
F.T.I. District Council 57 J.A.T.F.
Farr Construction Corporation
Farwest Corrosion Control Company
FCS Group LLC
Fedco Paints And Contracts
Fine Painting And Allied Services, LLC.
Finishing Plus
Finishing Systems of Florida, Inc.
Fischer Technology, Inc.
Five Star Decorating, Inc.
Forecast Sales
Forrest Services LLC.
Fought & Company, Inc.
Frey Coating Solutions, Inc.
Front-Line Coatings LLC
FTI of DC77
Fuel Tank Maintenance
G & M Painting Enterprises, Inc.
Gaditana de Chorro Y Limpieza, S.L.
GapVax Inc.
Garden State Council, Inc.
Gartner Coatings, Inc.
Gateway Industrial Services
Gemstone, LLC
General Coatings Corporation
General Dynamics NASSCO-Earl Industries (fma United Coatings Corp)
General Dynamics/Information Tech.
General Industries
General Insulation, Inc.
Geoblaster Equipment
George G. Sharp, Inc.
Georgia-Pacific Chemicals LLC
Gill Industries, Inc.
Glavin Coating & Refinishing Ltd.
GMA Garnet (USA) Corp.
Goodman Decorating Co., Inc.
Goodwest Linings and Coatings
Grace Distributing Inc.
Gracie Painting LLC
Graco Inc.
Green Diamond Sand Products
Greener Blast Technologies
Groome Industrial Service Group
Growell Blastec Co., Ltd.
GS Engineering & Construction Corp.
Gulf Coast Contracting, LLC
Gunderson, Inc.
Guzzler Manufacturing, Inc.
H.I.S. Painting, Inc.
Hadek Protective Systems Inc
Hall Industrial Contracting, Ltd.
Hampton Diversified Holdings, LLC dba H D Water Jetting
Hancock Sandblast & Paint LLC
Hanson Pressure Pipe
Harrison Muir, Inc.
Hartman-Walsh Painting Company
HCI Chemtec Inc.
HCI Industrial & Marine Coatings Inc
HDR-Schiff Associates
Henkels & McCoy
Hercules Painting Company
Hi-Temp Coatings Technology
High Steel Structures, Inc.
Highland International, Inc.
HippWrap Containment
HoldTight Solutions Inc.
Hong Hua Guan Marine & Engrg. Pte Ltd.
Honolulu Painting Company, Ltd.
Howell & Howell Contractors, Inc.
HRV Conformance Verification Associates, Inc.
Hunnicutt's, Inc.
Huntsman Polyurethanes
Hurricane Construction, Ltd.
Hyundai Engineering & Steel Industries Co Ltd
IBIX North America
IDS Blast Finishing
IMETECO S.A.
Impresa Donelli, S.R.L.
In-Spec Corporation Pte Ltd
Indian Valley Industries, Inc.
Induron Coatings, Inc.
Industrial Corrosion Control, Inc.
Industrial Marine, Inc.
Industrial Painting Limited, Inc.
Industrial Painting Specialists
Industrial Specialists LLC
Industrial Technical Coatings, Inc.
Industrial Vacuum Equipment Corp.
Insulating Coatings Corporation
Intech Contracting LLC.
Integrated Structural Concepts
Inter-City Contracting, Inc.
InterMoor Inc.
International Flooring & Protective Coatings, Inc.
International Rigging Group, LLC.
Interpaints SAC
Intertek Industry Services
Ionion Painting
IPAC Services Corporation
Iron Bridge Constructors, Inc.
ISG dba Universal Inc.
ISTI Plant Services
IUPAT, District Council #5
J. Goodison Company, Inc.
J. Mori Painting Inc
JAD Equipment Co. Inc.
Jag'd Construction, Inc
Jal Engineers Pvt. Ltd.
Jamac Painting & Sandblasting Ltd.
Jammies Environmental Inc.
Jeffco Painting & Coating, Inc.

Continued

SSPC Organizational Members

Jerry Thompson & Sons, Inc.
Jet De Sable Houle Sandblasting Ltd.
Joaquin Riera Tuebols S.A.
John B. Conomos, Inc.
John W. Egan Company, Inc.
Jos. Ward Painting Co.
Jotun Coatings China
Joyce Safety Industrial Co. Ltd.
Jupiter Painting Contracting Co Inc
K & K Painting Inc.
K.V.K. Contracting Inc.
Kane, Inc.
Keene Coatings Corp.
Keizer Technologies Inc.
Kennametal Inc.
Kern Steel Fabrication, Inc.
Kimery Painting, Inc.
Kiska Construction, Inc. (KCI)
Klicos Painting Company, Inc.
KMX Painting, Inc.
Knowles Industrial Service Corporation
Kopak Industries
L & L Painting Company Inc.
L. Calvin Jones
L. F. Clavin & Company, Inc.
L.M. Temperature Control, Inc.
Lambton Metal Service
Larson Electronics, LLC.
LBI, Inc.
Ledcor Coating & Insulation Ltd.
Leighton Associates, Inc.
Liberty Maintenance, Inc.
Limnes Corp.
Lindner Painting, Inc.
Line-X Corp.
Linita Design and Manufacturing
Liuna Canadian Tri-Funds
Llamas Coatings
LLC "UkrMistAntykor"
LorRich Enterprise, LTD
Luckinbill, Inc.
Luoyang Hong Feng Refractories and Abrasives Co. Ltd.
M & D Coatings Inc.
M & J Construction Company
M & R Painting, Inc.
M Shiroma Painting Company Inc.
M. Painting Company, Inc.
M. Pallonji & Company Pvt. Ltd.
MacDonald Applicators Ltd.
Madison Chemical Industries Inc.
Madison Coating Company Inc
Magnum Drywall Inc.
Maguire Iron, Inc.
Main Industries Inc.
Mandros Painting, Inc.
Manolis Painting Company, Inc.
Mansfield Industrial
Manus Abrasive Systems, Inc.
Marcom Services, LLC
Marine Specialty Painting
Marinette Marine Corporation
Marinis Bros., Inc.
Mascoat Products
Mass Coating Corp
Matco Services Inc.
Matheson Painting
Max Access, Inc.
Maxlife Coatings
MB Environmental Consulting
McCormick Industrial Abatement Services, Inc.
McCormick Painting Company
McElligott Partners Pty. Ltd.
McKay Lodge Conservation Laboratory
McLoughlin Industrial Flooring Limited
MCSA (Mantenimiento & Construcciones,S.A)
METCO Materials Evaluation & Tech. Corp.
Michelman-Cancelliere Iron Works
Midsun Specialty Products Inc
MIK Industrial LLC
Miller Precision Manufacturing and Integration
Minerals Research & Recovery, Inc.
MMLJ, Inc.
Mobile Pipe Lining and Coating Inc.
Modern Protective Coatings, Inc.
Mohawk Garnet, Inc.
Monarflex by Siplast
Monoko, LLC
MONTI Tools Inc.
Montipower Inc.
Morin Industrial Coatings Ltd.
MST Inc (Modern Safety Techniques)
Municipal Tank Coatings
Murphy Industrial Coatings
N A Logan, Inc.
N G Painting, LP
N. I. Spanos Painting, Inc.
NACE International-The Corrosion Society
National Coating and Linings Co.
National Coatings, Inc.
Natrium Products, Inc.
Negocios Metalurgicos SAC
Nelson Industrial Services, Inc.
New England Sandblasting and Painting
New Kent Coatings Inc.
NexTec Inc.
Niagara Coatings Services, Inc.
Nisku Industrial Coatings Ltd.
NM Caribbean Insulation Services Ltd
NOR-LAG Coatings Ltd.
Norfolk Coating Services, LLC.
North West Tank Lining & Inspection Inc.
Northwest Sandblast & Paint LLC.
Norton Sandblasting Equipment
Novatek Corporation
NUCO Painting Corporation
Nuplex Resins LLC.
NuSteel Fabricators, Inc.
O.T. Neighoff & Sons, Inc.
Odle, Inc.
Oil States Industries (Asia) Pte LTD
Oilgon Solutions Sdn Bhd
Olimag Sand, Inc.
OLS Restoration, Inc.
Olympus & Associates, Inc.
Olympus Painting Contractors, Inc.
Ontario Painting Contractors Association
OPT CO
Opta Minerals, Inc.
Optimiza Protective & Consulting, SL.
Oregon Iron Works, Inc.
Orfanos Contractors, Inc.
P & L MetalCrafts LLC
P & S Painting Co., Inc.
P & W Painting Contractors Inc.
P S Bruckel Inc
P&P Contracting, Inc
P.C.I. International, Inc.
Pacific Dust Collectors and Equipment
Pacific High Technology Engineering Services
Pacific Painting Co Inc
Pacific Titan, Inc.
Pacific Yacht Refitters Inc.
Paige Decking
Paige Floor Covering Specialists
Paint Inspection Ltd
Paint Supply Company
Painters USA, Inc.
Panco Resources and Engineering Consultancy Services
Panther Industrial Painting, LLC
Paragon Construction Services of America Inc.
Park Derochie (Seaside) Coatings Inc
Park Derochie Coatings (Saskatchewan) Inc.
Park Derochie, Inc.
Paso Robles Tank, Inc.
Paul N. Gardner Company, Inc.
PCI Advanced Protective Coating
PCiRoads, LLC
Peabody & Associates, Inc.
Pen Gulf, Inc.
Performance Blasting & Coating
Petrochem Insulation Inc.
Phillips Industrial Services Corp.
Phoenix Fabricators & Erectors Inc.
Piasecki Steel Construction Corp
Pinnacle Central Company
Planet Inc
Plasma Coatings
Platypus Marine, Inc.
Poly Delta Coatings
Polyize Technologies, Inc.
Polyset
Pop's Painting
Poseidon Construction
PPG Industries China
Precision Industrial Coatings, Inc.
Preferred, Inc.-Fort Wayne
Prestige Polymers
Prime Coatings, Inc.
Pro-Spec Painting, Inc.
Pro-Tect Plastic & Supply, Inc.
Professional Application Services, Inc.
Prospectrum Coatings bvba
Providence Paint Company
PT Berger Batam
PT. Nira Murni Konstruksi
PT. Safinah Laras Persada
Public Utilities Maintenance, Inc.
Purcell P & C, LLC
QED Systems, Inc.
Qindao Advanced Marine Material Technology Ltd
Quality Assured Industrial Coatings
Quality Linings & Painting, Inc.
Quantum Technical Services
Quincy Industrial Painting Co
Quindao Advanced Marine Material Technology, Ltd.
Quinn Consulting Services, Inc.
R & B Protective Coatings, Inc.
R & S Steel, LLC
Rainbow, Inc.
RAK Paints LLC
Rapid-Prep, LLC
Raven Lining Systems
Razorback, LLC
RBW Enterprises
RECAL RECUBRIMIENTOS, SA de CV
Redi-Strip Metal Cleaning Canada Ltd
Regal Industrial Corporation
Reglas Painting Company, Inc.
Reichle Incorporated
Rescom Coatings Inc.
Rhino Linings Corporation
Righter Group, Inc.
Ring Power Corporation
Rizzo Brothers Painting Contractors Inc.
RML Construction
Robert W. Britz Company, Inc.
Rogers Industries, LLC
Rotha Contracting Company, Inc.
Roval USA Corporation
Rover Contracting Inc.
Royal Bridge Inc.
Royce International LLC
RPN Recubrimientos Polymericos Del Noroeste SA DE CV
S & D Industrial Painting Inc
S & S Bridge Painting, Inc.
S & S Coatings, Inc.
S. David & Company, Inc.
Sabelhaus West, Inc.
SAFE Systems, Inc.
Safespan Platform Systems, Inc.
Safety Lamp of Houston
Saffo Contractors, Inc.
Safway Services, LLC
Sahara Sandblasting and Painting LTD
Samac Painting
Sand Express
Satterlund Testing & Inspection
Sauereisen
Scafom Canada
Scicon Worldwide BVBA
Sealteks, Inc.
Seaway Painting LLC
Secondary Services, Inc.
See Hup Seng Limited
Seifert Construction Inc
Seminole Equipment, Inc.
Service Contracting, Inc.
Services Acquisition Co LLC dba Tank Services
Servicios Tecnicos Industriales y Maritimos, S.A. (SETIMSA)
Seymour Midwest
Shanghai Congsheng Coating Equipment Co. Ltd.
Shanghai Liangshi Blasting & Coating Equipment Co. Ltd
Sherwin Williams Brasil
Sherwin-Williams Industrial & Marine Coating China
Ship-2-Shore
Sigma Enterprises LLC
Simpson Sandblasting and Special Coatings, Inc.
Simpson Strong-Tie
Skinner Painting & Restoration
Skyline Steel LLC
SME Steel Contractors
SOEP PAINTING CORPORATION
Soil & Materials Engineers, Inc.
Somerset Welding & Steel
Sonic Coating Solutions Inc.

Southern Paint & Waterproofing Co.
Southern Painting & Blasting, LLC
Southern Road & Bridge, LLC
Southland Painting Corporation
Spartan Contracting, LLC
Specialty Application Services, Inc.
Specialty Finishes, LLC
Specialty Groups, Inc.
Specialty Polymer Coatings, Inc.
Specialty Products, Inc.
Spensieri Diversified LLC
Spider
Sponge-Jet, Inc.
Sprayroq Inc.
SRI Construction LLC
SRT Sales and Service, LLC
Stantec
Steel Fabricators of Monroe, LLC
Steel Management System, LLC
Steel Painters Inc.
Steele Consulting Inc.
Stinger Bridge & Iron
Straight Line Industrial Services
Structural Coatings, Inc.
Sulzer Mixpac USA, Inc.
Sunbelt Rentals
Superior Industrial Maintenance Co.
Superior Painting Co., Inc.
Surface Prep Supply
Surface Preparation & Coatings, LLC.
Swalling Construction Company, Inc.
Swanson & Youngdale, Inc.
Symmetric Painting, LLC
T & W Industrial Services LLC.
T-Tex Equipment L.P.
Tamimi Company Commercial Division
Tarpon Industrial, Inc.
Tarps Manufacturing, Inc.
TDA Construction, Inc.
TDJ Group, Inc.
Team Industries, Inc.
Techno Coatings, Inc.
Tecnico Corporation
Temp-Coat Brand Products, LLC
TERRY McGILL INC.
Tesla NanoCoatings, Inc.
Testex, Inc.
Texas Bridge, Inc.
The Aulson Company, Inc.
The Aulson Company, LLC
The Blastman Coatings Ltd.
The Corrosion Institute of the Caribbean
The Gateway Company
The Nacher Corporation
The Rodriguez Corporation
The Rose Corporation
The University of Akron
The Valspar Corporation
The Warehouse Rentals and Supplies
Thomarios
Thomas Industrial Coatings, Inc.
Thompson Metal Fab, Inc
TIB Chemicals AG
Tidal Corrosion Services LLC.
Tidewater Staffing, Inc.
Timco Blasting & Coatings, Inc.
Tioga Air Heaters, LLC.
Titan Industrial Services
TJB Inspection & Construction Services, Inc.
TJC Painting Contractors, Inc.
TMI Coatings, Inc.
TMS Metalizing Systems, Ltd.
Tony Painting
Topline Limited
Tower Inspection Inc.
Tower Maintenance Corp.
TQC B.V.
Tractel Inc. Griphoist Division
Trask-Decrow Machinery
Travis Industries, Inc.
Tri-Krete Coatings Inc.
Tri-State Painting, Inc.
Trinity Industries de Mexico S. de R. L. de C.V.
Triple S&P, Inc. dba Dixie-Southern
TRUQC LLC.
Turman Commercial Painters
Turner Industries Group, LLC
U.S. Coatings
U.S. Tank Painting, Inc.
UHP Projects, Inc.
Uni-ram Corporation
Unifab Industries, Ltd.
United Decorating Inc.
United States Corrosion Engineers, Inc.
Universal Acoustic & Emission Technologies, Inc.
US Coatings, Inc.
US Minerals/Stan Blast
Utility Service Company, Inc.
V & T Painting LLC
V. V. Mineral
Van Air Systems
Vanwin Coatings of VA, LLC
Venus Painting
Vermillion Painting & Construction
VersaFlex Incorporated
Versatile Painting & Sandblasting
Ville Platte Iron Works, Inc.
Vimas Painting Co., Inc.
Vision Painting & Decorating Services
Vision Point Systems
Vitro Minerals
VMP Research & Production Holding JSC
Vulcan Painters, Inc.
W Abrasives
W Q Watters Company
W S Bunch Company
W W Enroughty & Son, Inc.
Wagner Systems Inc.
Waskey Services, LLC
Wasser High-Tech Coatings, Inc.
Waveland Services Inc.
Wenrich Painting, Inc.
Western Industrial Services, LTD
Western Industrial, Inc.
Western Technology, Inc.
Wheelabrator
Wheelblast, Inc.
Wilkinson Sandblasting, LLC
WIWA LP
Worldwide Industries, Inc.
Worth Contracting
Wuhan Hengyitong Corrosion Engineering Co. Ltd
Wuxi Ding Long Trading Co., Ltd.
Xi'AN Jing-Jian Paint & Coatings Group
Xinjiang Hongshan Coatings Co., LTD
Xtreme Polishing Systems
Yankee Fiber Control, Inc.
Yejian New Material Co., LTD
Yellow Creek Coating Services
YYK Enterprises, Inc.
Zachry Industrial, Inc.
Zebron Corporation
Ziegler Industries Inc
Zingametall BVBA
ZRC Worldwide

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American Institute of Steel Construction (AISC)
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Allen Blasting & Coating, Inc.
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Arkansas Painting & Specialties, Inc.
ASCO - American Stripping Company
Atsalis Brothers Painting Co.
Austin Industrial, Inc.
Avalotis Corporation
Blastco Inc.
Brand Energy Solutions
C.A. Hull
Cannon Sline Industrial
Carabie Corp.
Certified Coatings Company
Champion Painting Specialty Services, Corp.
Chavern Limited
Clemco Industries Corp.
Cloverdale Paint, Inc.
Consolidated Pipe and Supply, Inc.
Cor-Ray Painting Co.
Cornerstone Painting Contractors, Inc
Corrosion Resistance
Dalco Services, Inc.
DBM Services, Inc.
Demilec USA
Dex-O-Tex division Crossfield Products Corp.
Dodd Coating, Consultant & Inspection Service Inc.
Dow Chemical Company
Dudick Inc.
Dunkin & Bush, Inc.
Dunn-Edwards Corporation
Eagle Industries
F.D. Thomas, Inc.
FCA International
Fletch's Sandblasting & Painting, Inc
Genesis Environmental Solutions, Inc.
Graydaze Contracting Inc.
Harrybeat International Services Limited
Harsco Minerals
Hempel USA, Inc.
Industrial Coatings Contractors, Inc
International Marine and Industrial Applicators LLC
ITPTS Technical Institute of Preparation and Surface Treatment
Jotun Paints, Inc.
Kelly-Moore Paint Company, Inc.
Kinyon Construction, Inc.
Kolona Painting & General Construction, Inc.
Landmark Structures
Long Painting Company
Magnum Energy Services LTD.
MARCO
Mid-Atlantic Coatings, Inc.
Mobley Industrial Services, Inc.
Mohawk Northeast, Inc.
Naval Coating, Inc.
Newage Painting Corp.
North American Coatings CL Coatings Division
North Star Painting Co., Inc.
Northwest Sandblasting & Painting, Inc.
NTS Inc.
Odyssey Contracting Corporation
Olympic Enterprises Inc.
Ostrom Painting & Sandblasting, Inc.
Polygon
Precon Marine Inc.
Pro Tank - Professional Tank Cleaning & Sandblasting
Puget Sound Coatings Inc.
Quality Coatings of Virginia, Inc.
Redwood Painting Company, Inc.
Rust-Oleum Corporation
San Diego Protective Coatings Inc.
Shinko Company Ltd.
Shopwerks Inc
Sil Industrial Minerals, Inc
South Bay Sand Blasting & Tank Cleaning
StonCor Group Canada Carboline/Plasite Coatings Group
Sturgeon Services International
Surface Technologies Corporation
T. F. Warren Group
Tank Industry Consultants, Inc.
Termarust Technologies
The Brock Group
TSC Training Academy
Williams Specialty Services, LLC