On static electricity and abrasive blasting

From *JPCL*, December 2012 | Free Product Information

What causes static electricity during abrasive blasting? What risk does it pose, and how can it be controlled?

From Simon Hope Salamis

Static electricity is produced by the active transport of electrons to create a potential difference or charge (the classic example being the Van de Graff generator), which then discharges back to earth when the voltage is great enough to 'jump' as a spark. The spark will take the shortest and easiest track to earth.

In abrasive blasting using compressed air, it is possible to charge up the blast nozzle with static electricity. Dry air, rather than damp air, helps maintain the charge that builds up as the abrasive transports electrons to the nozzle and deposits them there. Eventually, the charge becomes so great that the electrons jump to the nearest earth, which will be either the operator, if not wearing suitable rubber-soled boots, or the substrate. Sparks can be over one foot (300 mm) long and have relatively high energy.

Sparks themselves do not pose a particularly high risk in normal operations such as in blast pens of general construction sites. They do, however, become a problem in explosive or potentially explosive environments, where a spark becomes an ignition source. An adjacent spray shop may have enough solvent vapor to be within the explosive concentration limits for the material. Similarly, in petrochemical sites, there are 'zoned' areas where equipment producing sparks or having a spark potential must be controlled by a permit-to-work system due to the risk from hydrocarbons. Systems such as flour mills that produce fine dust likewise are high-risk areas for static-producing equipment because the spark can cause ignition of the dust, with catastrophic consequences.

Control of the static is quite simple to achieve. The first and simplest thing to do is to provide a controlled discharge path without permitting a spark. This path can be provided either by directly earth-bonding the nozzle using an earth wire from the nozzle straight to earth or by using conductive blast hose with continuity to the blast pot, which is then earthed to a suitable point.

Another alternative control is the use of a wet abrasive slurry. It creates continuity with the nozzle and substrate, thus completing the earth circuit.

The air from the nozzle can act as a purge to remove flammables from the vicinity of any discharge, although this practice is not a substitute for proper earthing.

In Europe, static discharge comes under the ATEX (ATmosphere EXplosive) regulations, so any equipment with the potential to generate static that is used in a zoned area must be built to be compliant with these regulations and must be certified accordingly. In the U.S., OSHA should be consulted for regulations, standards, and guidance on explosive environments and static discharge (osha.gov).

Also, for work in high-risk areas, the use of suitable gas monitors set to pick up any potentially explosive situations is a must.

Editor's Note: This Problem Solving Forum was also posted on JPCL*'s sister publication,* PaintSquare *News. Online responses to the question as well as other Problem Solving Forum questions and answers can be found at paintsquare.com/psf/. Problem Solving Forum is an interactive column on* PaintSquare News *and on* JPCL. *Additional answers to this month's question may be submitted to* PaintSquare *News or to* JPCL. *You can also submit questions for Problem Solving Forum on* PaintSquare *News, or you can submit questions to Karen Kapsanis,* JPCL, *kkapsanis@paintsquare.com*.

President's Welcome

From *JPCL*, December 2012 | Free Product Information

Table of Contents

President's Welcome
Special Events, Awards Planned for Attendees
Attendees Can Hone Their Skills in San Antonio
SSPC 2013 Offers Well-Rounded Workshops
Technical Program Covers Protective, Marine, and Commercial Coatings
SSPC Committees Plan to Meet in San Antonio
Exhibitors to Bring Their Finest to SSPC 2013
Exhibitors at a Glance
SSPC 2013 Daily Schedule
Conference Registration Form

Stephen Collins

Dear SSPC Members and Guests,

It is truly my privilege to invite you to join me, and hundreds of your peers, in San Antonio, TX, January 14–17, 2013, for SSPC 2013 featuring GreenCOAT. Since the re-launch of SSPC's show in 2011, protective coatings professionals from around the world have discovered why SSPC is the leader in providing coatings information and training.

The SSPC is dedicated to staying focused on the coatings industry. From coating formulations to application, specification writing to inspection, and abrasive blasting to waste disposal, the SSPC conference covers every aspect of coating projects—from start to finish. And, once again, for the 3rd consecutive year, we will be featuring GreenCOAT programming in the technical sessions. That's a lot isn't it? No other event provides the depth and quality of content relevant to the processes and practices of the coating professional. So I'm sure we will see you at the conference.

While you're there, I would like to encourage you to check out the exhibit hall, and take the time to talk to each exhibitor. This is the time and place to meet the people that make key business decisions every day, and you might just pick up the next great idea to change your business or even the entire industry. Also, don't forget about the Annual Business Meeting & Awards Luncheon on Monday the 14th, so plan to travel on Sunday to be there for the morning sessions and this year's event.

Whether you are a contractor, consultant, inspector, engineer, supplier, or end user, we all need to protect our assets! That's why SSPC offers great speakers on today's burning issues as well as the needs of the future. And don't forget about the large selection of SSPC training programs available both before and after the show if you want to learn even more. If you need Continuing Education hours, many of the courses will help you earn those hours as well as expand what you know about everything from coatings fundamentals to inspection to project management.

Please join us in San Antonio, TX, at the Henry B. Gonzalez Convention Center, and I guarantee

you will come away with all you need to do the project better, safer, and more cost effectively.

We can't wait to see you there!

Sincerely,

Stephen Collins

SSPC President

Join the Conversation:

Add your comment (Your comment will be displayed as posted by heidi bonine; PaintSquare reserves the right to remove or edit comments. Comments not consistent with our comment posting policy will be removed.)

PAINTSQUARE

The First Word in Protective & Marine Coatings

A Product of Technology Publishing / PaintSquare
JPCL | PaintSquare News | *Durability + Design* | Paint BidTracker

Attendees Can Hone Their Skills in San Antonio

From *JPCL*, December 2012 | Free Product Information

Table of Contents

President's Welcome
Special Events, Awards Planned for Attendees
Attendees Can Hone Their Skills in San Antonio
SSPC 2013 Offers Well-Rounded Workshops
Technical Program Covers Protective, Marine, and Commercial Coatings
SSPC Committees Plan to Meet in San Antonio
Exhibitors to Bring Their Finest to SSPC 2013
Exhibitors at a Glance
SSPC 2013 Daily Schedule
Conference Registration Form

Registration for SSPC training courses must be done separately from SSPC 2013 conference registration. Several courses have prerequisites, which can be found on www.sspc2013.com under the "Training & Certification" section. For more information, contact Jeannine Bodack at bodack@sspc.org.

Navigating Standard Item 009-32

Planned for Jan. 18, the course describes the naval ship cleaning and painting requirements found in Standard Item 009-32. It covers the cleanliness, surface preparation, coating application requirements, and system application instructions. Requirements of referenced standards are also reviewed. This course will help attendees better understand the painting requirements for U.S. Navy surface ships, submarines, and aircraft carriers.

Applicator Train-the-Trainer (ATT)

The course, on Jan. 15–16, 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. It provides a standardized curriculum for applicator training to present at the shop or job site.

Bridge Coating Inspector (BCI)

BCI Level 1 will be held on Jan. 12–16, and Level 2 will be held on Jan. 12–17. The BCI course 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 and the skills required to inspect new bridge steel painted in the shop, in the field, or maintenance systems applied in the field.

Fundamentals of Protective Coatings (C1)

The C1 course, to be held on Jan. 12–16, 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.

Planning & Specifying Industrial Painting Projects (C2)

C2 is scheduled from Jan. 12–16. This course 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.

Lead Paint Removal (C3)

C3, to be held Jan. 13–16, includes information on the hazards of lead and other toxic metals as well as the current legal and regulatory environment. The course discusses protecting workers; complying with environmental regulations; proper management of waste streams and operations with 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. There will be a discussion of insurance and bonding issues and an introduction to other safety and health issues.

Lead Paint Removal Refresher (C5)

C5 is scheduled for Jan. 15. This course provides refresher training for supervisors/competent persons who are responsible for industrial deleading operations. Several state supplements are available. This course meets the requirements of state programs that require refresher training to maintain supervisor certification and QP 2 requirements for competent person refresher training certification.

Abrasive Blasting Program (C7)

The C7 course will take place on Jan. 18–19 and 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, cleanliness, and profile; dust and debris control; and abrasives.

Under the DoD Corrosion Prevention and Control Program, funding has been provided to train DoD, Army, Navy, and Air Force personnel in SSPC's C7 course. For information, contact Jennifer Merck: merck@sspc.org.

Floor Coating Basics (C10)

Held Jan. 12–13, C10 is designed to meet the practical training requirements of SSPCQP 8, Section 4.4, which requires that each job crew chief and 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 documents TU-10, "Procedures for Applying Thick Film Coatings and Surfacings Over Concrete Floors."

Airless Spray Basics (C12)

The C12 course will be held on Jan. 13–14 and assesses the skills of marine/industrial applicators with 800 hours applying protective coatings with airless spray.

Coating Application Specialist (CAS)

The CAS Certification program will be held Jan. 11–12, and it 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. CAS is an exam only.

Coating Applicator Specialist Refresher

On Jan. 10, this course will provide an overview of surface preparation and application. This program is a great way to prep candidates for CAS Level 1 and 2 exams.

Concrete Coating Inspector (CCI)

Concrete Coating Basics (CCB) will take place Jan. 12–13; the CCI Tech Level is on Jan. 12–16; and the CCI Cert Level is Jan. 12–17. CCI provides several different paths to certification, depending on the attendee's current level of experience and training; these can be found at sspc.com. CCB provides basic training to contractors and is a prerequisite for individuals seeking CCI certification. The objective of CCI is to thoroughly train individuals in the inspection of surface preparation and the installation of industrial protective coatings on industrial concrete structures and facilities.

NAVSEA Basic Paint Inspector (NBPI)

To take place on Jan. 12–16, the NBPI course is an inspection course that was 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 not limited to): cofferdams, decks for aviation and UNREP, chain lockers, underwater hull, bilges, tanks, voids, well deck overheads, and others.

Using SSPC PA 2 Effectively

This half-day workshop takes place on Jan. 15 and 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 conforms to the levels specified.

Protective Coatings Inspector (PCI)

PCI Level 1 will be held on Jan. 12–16; Level 2 will be Jan. 12–17; and Level 3 will be held Jan. 18. C1 is strongly recommended as a prerequisite for the PCI program.

PCI Level 1 has no prerequisites but is not an entry-level course. The objective 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 training schedule with evening homework and study.

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 an SSPC Level 2 Certified Coating Inspector. PCI Level 3 recognizes those 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 PCI Level 3 exams on day seven.

PCI Workshop

This new workshop, held on Jan. 15, trains individuals in the use of proper inspection tools during surface preparation and installation of industrial and marine protective coatings and lining systems. The course has been designed as a supplement to students who have taken the PCI Online program.

Protective Coatings Specialist (PCS)

The PCS certification program, to be held on Jan. 17, awards and recognizes individuals who have in-depth knowledge of industrial coatings technology. PCS certification demonstrates mastery in assessment of coatings systems, development of coatings specifications, surface preparation and coatings applications, economics of coatings, contract planning and management, coating failure analysis, and inspection.

Quality Control Supervisor (QCS)

To be held Jan. 18–19, QCS 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.

Basics of Estimating Industrial Coatings Projects

This course will take place on Jan. 12 and covers the fundamentals of estimating industrial painting job costs including surface area calculations, labor and production rates, and equipment and material requirements.

Inspection Plan and Report Writing

This new workshop, to take place Jan. 18–19, will emphasize reviewing plans and specifications to develop a comprehensive inspection plan and using forms to accurately document project-specific inspection and test results, non-conforming work, and rework. This course is designed for practicing coating inspectors familiar with commonly used coating inspection instruments and standards of practice.

Evaluating Common Coating Contract Clauses

On Jan. 13, this course will provide a basic overview of clauses most common to coatings contracts. It follows the outline of a standard construction contract, and teaches students to identify the key provisions that may be missing from contracts.

Project Management for the Industrial Painting Contractor

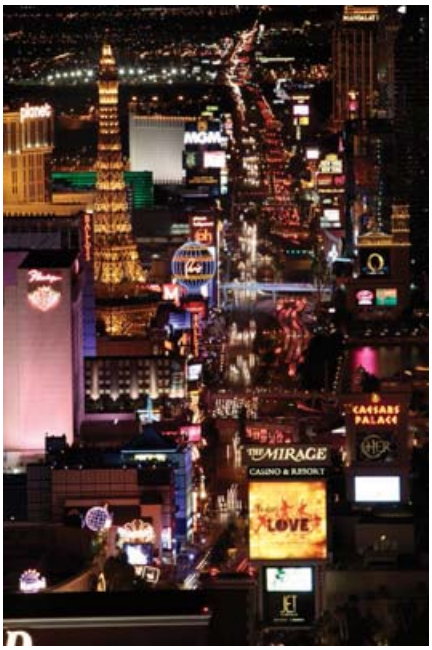
On Jan. 18–19, this course will offer an intro to project management concepts used on industrial painting projects. Attendees will learn about generating new business, reviewing contracts, employee relations, and job safety. Day two involves an exam on resolving real-world project management scenarios.

Coating Specification Essentials

This new course takes place on Jan. 11–13 and provides facility owners, coating managers, and specification designers with practical guidance in creating competent industrial coating specifications that better ensure contractor conformance with job requirements. It focuses on the technical requirements that designers should consider when preparing specifications for coating work on facilities/infrastructure with an emphasis on steel and concrete industrial and marine structures.

News

From *JPCL*, December 2012 | Free Product Information



Courtesy of the Las Vegas News Bureau

From February 4 through February 8, the Las Vegas Convention Center in Las Vegas, NV, will host the 39th annual World of Concrete 2013 (WOC) trade show, an international event dedicated to the concrete and masonry construction industries.

Expected attendees include commercial, general, repair, masonry, and residential contractors; specialty and decorative concrete contractors; concrete pumpers; construction managers; dealers and distributors, architects, engineers, designers, and specifiers; brick, pipe, block, and ready mix producers; rental equipment centers; precast/prestressed concrete producers; and others in the commercial concrete and masonry construction industries, according to show organizers.

With approximately 1,300 exhibitors and over 500,000 square feet of indoor and outdoor exhibit space, this year's WOC is expected to be larger than ever. In addition to the show, an education program will be held from February 4–8, featuring 90-minute and 3-hour sessions and over 100 skill-building seminars led by industry experts, providing training and certifications, safety and construction fundamentals, and other safety training programs vital to the commercial construction and masonry industry.

The following preview includes a list of seminars relevant to coatings professionals, as well as a list of exhibitors involved in the surface preparation and coating of concrete. All information is current as of press time.

Seminars

The following is a brief list of relevant seminars, listed by date, title, and time. Visit www.worldofconcrete.com for complete details, as well as pricing and registration information.

Monday, February 4

MO12, Troubleshooting Concrete Cracks: Understanding and Minimizing Cracking, 8:00–11:00 a.m.

MO25, Avoiding Floor Moisture Problems: Testing, Evaluation, and Remediation Systems, 8:00–11:00 a.m.

MO13, Repairing Concrete Cracks: Evaluation and Selection of Repair Methods, 1:00–4:00 p.m.

MO26, Fixing Floor Moisture Problems: Building Design and Construction Materials, 1:00–4:00 p.m.

MO30, Masonry Repair and Restoration Techniques, 1:00–4:00 p.m.

MO137, Advanced Repair Techniques: Evaluation, Repair Strategies and Design, 3:30–5:00 p.m.

Tuesday, February 5

TU14, Advanced Structural Repair: Strengthening Solutions, 8:00–11:00 a.m.

TU31, Troubleshooting Masonry Part I: Cracks and Movement, 8:00–11:00 a.m. TUPTD, How to Place & Finish Floors, 1:00–5:00 p.m.

Wednesday, February 6

WE15, Concrete Repair Fundamentals I: Surface Preparation, Reinforcement Repair, Material Selection and Placement, 8:00–11:00 a.m.

WE32, Troubleshooting Masonry Part II: Leaky Walls, 8:00–11:00 a.m.

WE35, Waterproofing Product Types and Systems, 8:00–11:00 a.m.

WEPTD1, How to Place & Finish Floors, 8:00 a.m.–Noon WECR1, Concrete Repair, 12:00–3:45 p.m.

WEPTD2, How to Place & Finish Floors, 1:00–5:00 p.m.

WECR2, Concrete Repair, 1:45–5:30 p.m.

Thursday, February 7

TH16, Concrete Repair Fundamentals II: Waterproofing and Corrosion Protection, 8:00–11:00 a.m.

TH23, Decorative Stains, Overlays, and Sealers—What the Fine Print Doesn't Tell You, 8:00–11:00 A.M.

THCR1, Concrete Repair, 12:00–3:45 p.m. THCR2, Concrete Repair, 1:45–5:30 p.m.

Friday, February 8

FR24, Understanding, Selecting, and Troubleshooting Sealers and Coatings for Decorative Concrete, 8:00–11:00 a.m.

Exhibitors

The following is a list of exhibitors of interest to the protective coatings industry. Company names and booth numbers are current as of press time.

AP/M ConShield S12801

Aqua Blast Corp. S11823

Aquafin, Inc. S10349

ARAMSCO S10949

Arizona Polymer Flooring S12700

Aurand Manufacturing & Equipment Co. S11518

BASF S10107

BlastPro Manufacturing, Inc. S11527

Blastrac Diamatic S10117

C.I.M. Industries, Inc. S10855

CDC Larue Industries, Inc. O31652 , S11449

CETCO S10039

ChemCo Systems, Inc. S10954

Citadel Floor Finishing Systems, Inc. S11607

Convergent Concrete Technologies S10415

Cortec Corporation S10754

Crown Polymers S11815

CTS Cement/Rapid Set S10207

DeFalsko Corp S12352

Denso North America S11450

Doosan Portable Power O32031

Dow Chemical Company CES03

Dur-A-Flex, Inc SO40844

EcoQuip, Inc. O30866

Eco-Shell, Inc. S12656

EDCO & Contrx Systems O31034

Euclid Chemical Co., The S10839

Five Star Products, Inc. S10149

Flexmar Coatings, Inc. S12907

Goff .S10549

Hammelmann Corp. S12454

HP Spartacote S11315

Husqvarna Construction Products C4303, O30370 a-d

Integument Technologies S12647

International Chem-Crete S12007

International Coatings, Inc S12550

Jetstream of Houston, LLP S11621

Key Resin Co. S11554

LANXESS S12014

Life Deck & BDC Epoxy Systems S12547

Lignomat USA S12725

3M O31243

Midwest Rake Co., LLC S12047

Munters Corp. S11755

NLB Corp. S11207

Novatek Corp. S10355

Palfinger North America C5203

Polycoat Products S11153

Polyguard Products, Inc. S10451

Polymax/Milamar Coatings, LLC S10453

Polymerica, LLC S12746

Proceq USA, Inc. S11645

Putzmeister America, Inc. C5727, N163

QUIKRETE Companies S10226

Raven Industries S12510

Rhino Linings Corp. S11419

Roadware, Inc S11545

Rust-Oleum Corp. S10352

Simpson Strong-Tie (Fox) 031162

Sky Climber, LLC N1537

SMITH Manufacturing S12349

SPE–USA S11521

Specialty Products, Inc. S12809

SSPC: The Society for Protective Coatings S12552

Therma-Stor, LLC N1921

Tnemec Company, Inc. S12719

Tramex Ltd., Black Hawk Sales, Inc. S12220

U.S. Silica Company S12623

Vector Corrosion Technologies S10952

W.R. Meadows, Inc O31518 , S10407

Exhibitors at a Glance

From *JPCL*, December 2012 | Free Product Information

Table of Contents

President's Welcome
Special Events, Awards Planned for Attendees
Attendees Can Hone Their Skills in San Antonio
SSPC 2013 Offers Well-Rounded Workshops
Technical Program Covers Protective, Marine, and Commercial Coatings
SSPC Committees Plan to Meet in San Antonio
Exhibitors to Bring Their Finest to SSPC 2013
Exhibitors at a Glance
SSPC 2013 Daily Schedule
Conference Registration Form

The following is a list of all companies exhibiting at SSPC 2013 and their booth numbers known to *JPCL* at press time. Up-to-date information can be found at www.sspc2013.com

- Abrasives Inc. 546
- Advanced Recycling Systems, Inc. 349
- Aggreko LLC 108
- AIR Systems International 517
- ARID-DRY 319
- Arma Kleen Company 631
- Atlantic Design Inc 649
- Barton International 537
- Binks 418
- BlastPro Manufacturing 125
- Bullard Co 706
- Canfield & Joseph, Inc 142

- CavCom Inc. 545
- Carboline Co. 301
- CESCO/Aqua Miser 206
- Chlor*Rid International Inc 321
- Cleaner Blast Solutions 200
- Clemco Industries Corp. 201
- CoatingsPro Magazine 639
- CSI Services, Inc. 127
- Custom Abrasives, LLC 602
- Cytec Industries 216
- Dampney Co. Inc 438
- DeFelsko Corporation 401
- Dehumidification Technologies, Inc 224
- Denso North America Inc 410
- DESCO Manufacturing Co., Inc. 411
- Detroit Tarp Inc. 338
- Diamond Vogel/Pinnacle Protective Coatings 443
- Doosan Portable Power 607
- DRYCO, LLC 514
- Dumond Chemicals 707
- Dustless Blasting by MMLJ, Inc. 711
- DUSTNET by EMI International 311
- Eagle Industries 306
- EcoQuip, Inc. 708
- Elcometer 217
- ELINERS 725
- EnTech Industries, LLC 148
- Evonik Degussa Corporation 444
- Fischer Technology Inc 611
- FS Solutions Group 100
- Fujian Duoleng Steel Group Co., Ltd. 543
- Geoblaster Equipment 107
- GMA Garnet (USA) Corp. 625
- Graco Inc 118

- Granite Mountain Quarries 124
- Green Diamond Sand Products 106
- Greenman-Pedersen, Inc. 421
- Hanes Supply, Inc 417
- Harsco Minerals 317
- Hempel Coatings 137
- HippWrap Containment, Inc. 415
- HoldTight Solutions Inc. 600
- HRV Conformance Verification Associates, Inc 636
- IBIX North American Headquarters, Surface Technologies LLC 620
- Indian Valley Industries 519
- Industrial Painting Limited, Inc. 633
- Industrial Vacuum Equipment Corp 548
- International Marine & Industrial Applicators LLC 446
- International Paint LLC 619
- JAD Equipment Co. Inc. 518
- Kennametal, Inc 714
- KTA-Tator, Inc. 307
- LVH Industries Inc. 629
- Marco 507
- Mascoat 337
- Max Access, Inc 642
- Midwest Rake Co. LLC 343
- Mohawk Garnet, Inc 207
- Moisture Control Co 535
- Monarflex by Siplast 615
- Montipower, Inc 506
- NACE International 637
- National Equipment Corp. 618
- NexTec, Inc./PreTox Systems 616
- Novatek Corp 339
- Novetas Solutions 220
- Olimag Sand 521
- OPTA Minerals, Inc 334

- Painters & Allied Trades LMCI 336
- Park Derochie 419
- Pinovo AS 638
- Polygon 501
- Polyguard Products 138
- PPG Protective & Marine Coatings 601
- Praxair Surface Technologies 237
- Pro-Tect Plastic & Supply, Inc. 342
- PTQ Safety LLC 226
- Rhino Linings Corp. 112
- Ring Power Corp. 449
- Royce International LLC 705
- SAFE Systems 416
- Safety Lamp of Houston 510
- SAFWAY Services, LLC 235
- Sand Express 634
- Sauereisen, Inc. 436
- Schmidt Engineered Abrasive Systems 525
- The Sherwin-Williams Co. 225
- Spider 114
- Sponge-Jet Inc. 406
- SSPC: The Society for Protective Coatings 325
- Sulzer Mixpac USA, Inc 724
- Sunbelt Rentals 710
- Tank Industry Consultants 239
- Tarps Mfg., Inc. 136
- The TDJ Group (The) 542
- Technology Publishing/PaintSquare 437
- Temp-Coat Brand Products 544
- TFT-Pneumatic, LLC 414
- Tnemec Co., Inc 539
- Tractel Inc. Griphoist Division 315
- Trimaco, LLC 442
- TruQC 243

- U.S. Minerals 643
- Uni-Ram Corp 547
- Van Air Systems 214
- VersaFlex Inc 508
- VRSim
- W Abrasives 721
- The Warehouse Rentals & Supply (TWRS) 149
- Wasser High-Tech Coatings 242
- Western Technology 407
- WIWA LP 701
- The Wooster Brush Co 345
- Zebron Corporation 516

Join the Conversation:

Add your comment (Your comment will be displayed as posted by heidi bonine; PaintSquare reserves the right to remove or edit comments. Comments not consistent with our comment posting policy will be removed.)

Applying FBE to Pipeline Internals

From *JPCL*, December 2012 | Free Product Information

Alan Kehr
Alan Kehr Anti-Corrosion, LLC, Alan Kehr is the Managing Consultant of Alan Kehr Anti-Corrosion, LLC (Lakewood, TX), which offers worldwide consulting on fusion-bonded epoxy (FBE), pipeline and rebar coatings, and several other services. Alan has more than 40 years of experience in the pipeline and reinforcing steel coatings industries. He has been active in SSPC and was instrumental in standards development for ASTM, ISO, and other industry associations.

Dennis Graham
Yellowgate Consulting, LLC, Dennis L. Graham is currently the owner of Yellowgate Consulting, LLC (Coldspring, TX), which provides consulting services for corrosion coatings and coating plant construction and upgrades. Dennis has 35 years of experience in the pipe coating and custom coating industries. Among his many accomplishments, Dennis was instrumental in building two internal flow-efficiency coating plants, two internal FBE facilities, and a plant to apply ID coatings for expandable tubulars. Dennis is currently a member of NACE and was a member of AWWA.

iStockPhoto

Alan Kehr

Internal plastic linings have more than fifty years' successful use in downhole tubulars.[1] Linings have been used to provide corrosion mitigation, mechanical damage resistance, and flow efficiency in water and gas transmission lines for nearly as long. Linings prevent product contamination during transport and provide safety (in case of potable water transmission). For gas transmission lines, linings prevent formation and buildup of black powder. When hydrostatic testing is used, a liner speeds the water removal and drying process. Fusion-bonded epoxy (FBE) is one choice in the arsenal of materials available for lining pipe used to transport water, gas, oil, or refined products. An FBE lining provides insulation properties, raising the wall temperature one to two degrees Celsius for deep-water pipelines.

Once the decision to line the pipe is made and the proper FBE selected, the next critical step is application. FBE application is straightforward, but the details are important. This article describes the details of application.

Dennis L. Graham

FBE Application

There are differences in the steps, depending on expected service and lining material selection. For example, due to the harsh environment for coatings exposed to well conditions in the oilfield, the application process follows the guidelines of NACE SP0191-2008.[2] There are special application needs that may require modification of the FBE material to make it suitable for internal

application. For example, melt-point, gel-time, and flow characteristics may need optimization to prevent powder buildup on the guns, avoid overspray roughness of the lining due to powder falling on gelled coating, and avoid drips and sags. However, regardless of the service or material, there are basic application steps common to all FBE linings (Fig. 1).

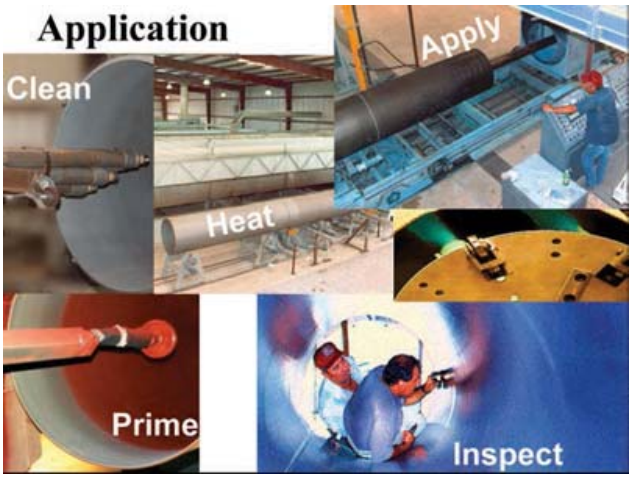


Fig. 1: Application of internal linings is straightforward: clean, heat, prime (if necessary), apply FBE, cure, cool, and inspect. Photos courtesy of Alan Kehr

- Inspect incoming pipe, including tests for salt contamination
- Remove oil/salt (if required)
- Blast clean
- Prime (if needed)
- Heat pipe
- Apply FBE
- Cure
- Inspect applied lining

Inspect incoming pipe: Review tally sheets and confirm the pipe description. Tally sheets are the documents that arrive with each truckload, railcar load, and barge. The documents describe the pipe's diameter, wall thickness, weight, and length. Each pipe is listed separately by number and length. Check incoming pipe for uncoatable rough edges, pits, raised seams, cracks, bevel damage, and dents. Visually inspect internal diameter (ID) for debris. Select random pipe for internal chloride contamination checks.[3,4] The area for salt inspection needs to be blast cleaned to a size larger than the test site to allow access to residual salt.

Remove oil/salt: For downhole tubulars, the first step in cleaning is thermal pickling for several hours in an oven set in the range of 315 C (600 F) to 425 C (800 F) to oxidize hydrocarbons.[5] If test results show positive for chloride contamination, all pipes receive cleaning before entering the production line in the coating plant. Phosphoric acid wash is not suitable for internal chloride elimination because it's not possible to ensure 100% removal of the acid. Instead, brush blast the inside of the pipe, remove spent media, and pressure wash at 2,500 psi (17 Mpa) or more with deionized (DI) water. Use compressed air to remove water and dry the internal surface. This cleaning step can be done days before the application process begins as long as the storage environment does not cause recontamination.

Blast clean: The pipe must be at least 3 C (5 F) above the dew point at the time of blasting. Higher temperatures may facilitate the cleaning process by loosening mill scale. Typically, blast cleaning is done with steel grit or other recyclable abrasive media with requirements similar to those for cleaning pipe before external FBE application. Usual specifications call for a White Metal blast on the steel surface with an anchor pattern from 40 µm (1½ mils) to 100 µm (4 mils) from peak to valley (Rz).[6]

However, materials such as alumina or garnet are common abrasive media and typically result in smaller Rz. NACE RP0394-2002 outlines a procedure for measuring the anchor profile using replica tape.[7] ISO 8503 covers the use of a profilometer.[8] [*Editor's Note: SSPC recently issued a standard, SSPCPA 17, for determining compliance with profile specifications. See the article this month by Beggs and Stiner, pp. 36–41.*]

Normally, the blast station is equipped with a pipe rotation device. There are two types of blast

devices: compressed air and rotating wheel. Each process uses a lance for support. With current technology, wheels are used only for pipe 12 inches in diameter or larger. Air lances are used for all sizes of pipe, but lose cost effectiveness with larger diameters (generally speaking, greater than 12 inches). Depending on the ease of cleaning and the required production rates, multi-lance stations may be needed. After blast cleaning is complete, dry, oil-free compressed air is used to blow out dust and spent media. Figure 2 shows photos of the cleaning process.

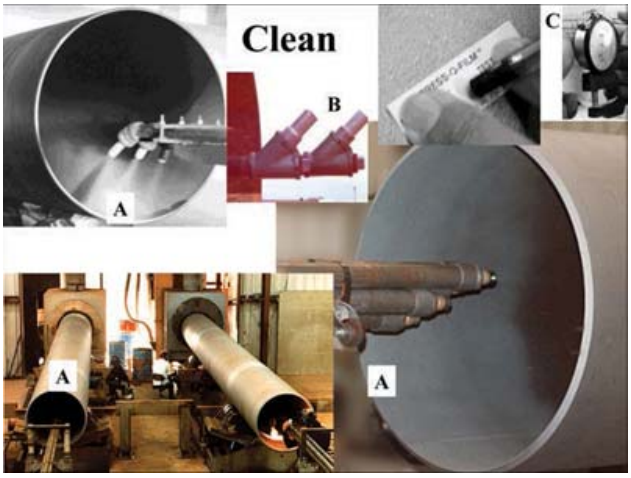


Fig. 2: The level of cleaning depends on expected service. Downhole tubing normally requires thermal pickling to remove hydrocarbons before blasting to White Metal. Less challenging environments may allow dispensing with the high-temperature burnout. Cleaning is a critical step in any coating process. (A) Internal blast cleaning of pipe. (B) Blast nozzles. (C) Measuring surface profile using replicator tape. Photos courtesy of 3M and Alan Kehr

Prime: Not all coating systems or pipeline environments require a primer for good performance. If a primer is needed, two types of primers are in common use. The first, and more traditional, is a phenolic-based liquid. A typical thickness for a phenolic-based primer is in the range of ¾ mil to 1 mil (19 to 25 µm). Avoid exceeding the manufacturer's recommended thickness. After phenolic application, the pipe is heated to flash off solvents and bring it to the temperature required for FBE application. This step needs to be controlled to remove all solvent before applying the powder topcoat, but it is important not to overcure the primer. If the primer is overcured, there will be insufficient residual chemical activity to effectively bond and react with the FBE. The result is poor adhesion between the two coatings. A volatile organic compound (VOC) unit at this station removes solvent vapor from the discharge air.

The other type of primer is water-based. Temperature control and airflow during application are critical because of the tendency of steel to flash rust in the presence of water. Typically, the pipe is warmed to 80 C (176 F) or so before application, and then clean, dry air is immediately blown down the pipe to ensure rapid drying. This water-based primer is not a thermosetting material, which means controlling timing of the heating step is not as big a concern as it is for a phenolic primer. Because the solids component of this type of primer is a very small percentage of the formulation, magnetic thickness gauges are not effective in measuring the thickness of the applied primer. The amount of applied primer is controlled by the quantity of liquid material sprayed.

In addition to optimizing FBE performance, primers are sometimes used to improve resistance to the environment within the pipeline.

A rotation device improves primer application uniformity, especially for larger diameter pipe.

Heat pipe: Pipe preheat temperature varies with the specific lining material requirements but is generally in the range of 160 C (320 F) to 240 C (464 F). There are two common types of heating equipment: induction coils and soaking ovens (Fig. 3). An induction heating process has the advantage of rapid heat-up, which means the primer is not exposed to excessive time at application temperature. A slow heating process, such as an oven, can result in overcure of the primer. Another advantage is that, with the induction heating technique, the coating lance can follow the progress of the induction coil, resulting in a uniform temperature of application for the FBE. In other application arrangements, the entire joint of pipe is brought up to temperature before the application step begins.

Fig. 3: One of two methods is normally used for heating pipe—induction or soaking. Either is used, but soaking ovens are most common for internal lining application and the normal course for post curing. Photos courtesy of Alan Kehr.

In that case, or if a soaking oven is used, an automatic system rapidly moves the pipe from the heat station to the application station to minimize heat loss. With either heating method, if the entire pipe is brought to application temperature before FBE spray begins, then the temperature of the pipe can be ramped from one end to the other. The lance application process takes a few minutes and, because the pipe is losing heat with time, it cools during the time required to apply the lining from one end of the pipe to the other. Having the far end of the pipe hotter and a uniformly increasing temperature along the pipe from the entry end to the exit end allows an even application temperature for the FBE. When post cure is used, the temperature ramping method is often not used.

Apply FBE: Powder application can be done with either a lance (Fig. 4) or, for small diameter pipe, a vacuum application system.[9] The application lance should be equipped with a variable-frequency drive motor to allow the spray head to enter the hot pipe rapidly. The speed is then slowed to allow uniform application. One or more spray nozzles are used for powder application, and rotation of the pipe helps provide a uniform coating thickness.

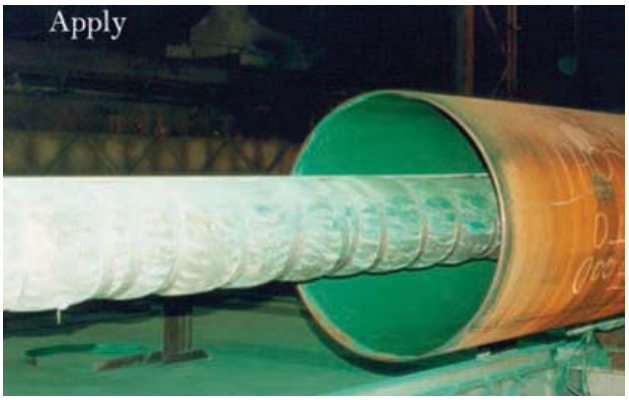


Fig. 4: FBE can be lance applied to 500 µm (20 mils) or more in a single application. Photo courtesy of Alan Kehr

The vacuum method relies on a timed release of aerated FBE to accomplish the coating application. In this process, a charge of powder is fluidized and then drawn by vacuum through pipe that is rotating at a constant speed. In either application process, the pipe continues to rotate until all of the FBE reaches the gel state.

Cure: Most internal FBE lining materials have a long gel time and require a post bake to provide sufficient time to complete the thermosetting cure reaction (Fig. 5). With current technology, phenolic primers require a post cure. Most often the post cure step is accomplished with a soak oven. However, some FBE materials cure fast enough to skip this step, or the cure may be accomplished in a subsequent heat cycle used during the application of an external coating. In all cases, except for cool down cure, timing must be controlled to avoid overcure of the lining material.

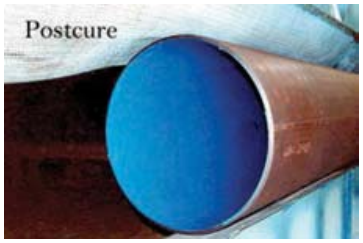


Fig. 5: For most internal lining systems, a post cure is required to cure the primer and/or the FBE. Photo courtesy of Alan Kehr

Inspect Applied Lining: After post cure, the pipe is allowed to cool to ambient, or is rapidly cooled by a water quenching process. The pipe is then visually inspected for sags or runs, checked for thickness using a magnetic gauge, and inspected for holidays (Fig. 6). For dry holiday testing, the normal voltage is approximately 5 volts per µm (125 V per mil). For a more precise calculation of the required voltage, reference the guidelines in NACE standard RP0490.[10] An alternative is to use a 67½ V or a 90 V wet sponge holiday detector.

Fig. 6: Holiday testing (A), visual inspection (B), and thickness measurements (C) are common steps in the quality-assurance process. Photos courtesy of Alan Kehr

Summary of FBE Internal Lining Application[11]

Internal FBE application follows the same general steps utilized in external FBE application procedures. Because the spray time is often longer, the FBE powder material may require modification to make it suitable for internal application. Choosing the best coating products and procedures that meet the end user's goals and follow the manufacturer's recommendations is essential. Assuring that the pipe is clean and coatable will maximize the coating integrity. During the application process, temperature control, timing, and regulation of the amount of product applied are critical in most steps involved in internal FBE coating/lining. Following these guidelines will help insure a finished product that meets or exceeds the pipeline performance expectations.

Editor's Note: This article, by Alan Kehr and Dennis Graham, is part of the series of Top Thinker articles appearing in *JPCL* throughout 2012. Mr. Kehr is one of 24 recipients of *JPCL*'s 2012 Top Thinkers: The Clive Hare Honors, given for significant contributions to the protective coatings industry over the past decade. The award is named for Clive Hare, a 20-year contributor to *JPCL* who shared his encyclopedic knowledge of coatings in many forums. Professional profiles of all of the award winners, as well as an article by Clive Hare, were published in a supplement to the August 2012 *JPCL*.

REFERENCES

1. R. H. Davis . "The Use of Internal Plastic Coatings to Mitigate CO_2 Corrosion in Downhole Tubulers," Corrosion/94, Paper No. 23, (Houston, TX: NACE, 1994).
2. NACE publication SP0191-2008, "Standard Practice: Application of Internal Plastic Coatings for Oilfield Tubular Goods and Accessories," (Houston, TX: NACE, 2008).
3. BS EN ISO 8502-9:2001, "Preparation of steel substrates before application of paints and related products—Tests for the assessment of surface

cleanliness—Part 9: Field method for the conductometric determination of water-soluble salts" (Switzerland: ISO, 2001).
4. ISO 11127-7:2011, "Preparation of steel substrates before application of paints and related products – Test methods for non-metallic blast-cleaning abrasives— Part 7: Determination of water-soluble chlorides" (Switzerland: ISO, 2011).
5. J. M. Nelson . "New Advancements in the Use of Internal Plastic Coating for Enhanced Oil Recovery," *MP*, Vol. 30, No. 12, December 1991, pp. 27-30.
6. NACE No. 1/SSPC-SP 5 White Metal Blast Cleaning (Houston, TX: NACE, 2006).
7. NACE Standard RP0394-2002, "Application, Performance, and Quality Control of Plant-Applied Fusion-Bonded Epoxy External Pipe Coating" (Houston, TX: NACE, 2002).
8. ISO 8503-4:2012, "Method for the calibration of ISO surface profile comparators and for the determination of surface profile—stylus instrument procedure" (Switzerland: ISO, 2012).
9. G. Mills . "The Application of Internal Fusion Bonded Epoxy Coating to a High Pressure Water Injection System: True State-of-the-Art End-to-End Internal Corrosion Protection," Corrosion/88, paper no. 214, (Houston, TX: NACE, 1988).
10. NACE Standard RP0490-2007, "Holiday, Detection of Fusion-Bonded Epoxy External Pipeline Coatings of 250 to 760 mm (10 to 30 mils)" (Houston, TX: NACE 2007).
11. J. A. Kehr . *"Fusion-Bonded Epoxy (FBE): A Foundation for Pipeline Corrosion Protection,* (Houston, TX: NACE, 2003).

Inspection and Quality: How Far Have We Come in 45 Years?

From *JPCL*, December 2012 | Free Product Information

Kenneth A. Trimber
KTA-Tator, Inc.
Kenneth A. Trimber is the President of KTATator, Inc., in Pittsburgh, PA, where he has been employed since 1968. He has more than 40 years of experience in the industrial painting field. He is a Past President of the SSPC and serves as Chairman on SSPC Committees and Task Groups. He is an SSPC-Certified Protective Coatings Specialist, an SSPC C-3 Supervisor/Competent Person for the Deleading of Industrial Structures, and a NACE-Certified Coatings Inspector Level 3 (Peer Review).

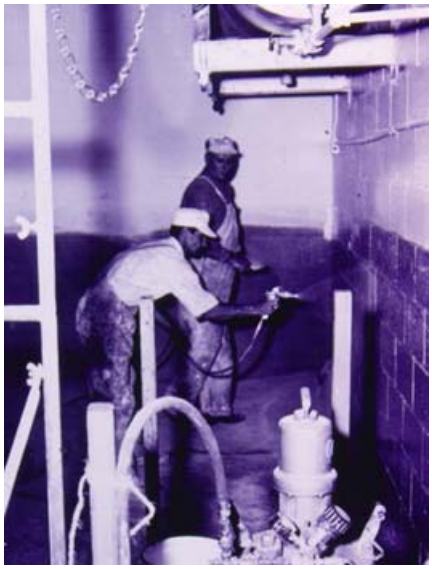
Ken Trimber in 1968

And in 2012

I have been involved with the coatings industry for almost 45 years, having started on a part-time basis in 1968, when the company was actually called Kenneth Tator Associates. One of my first duties was sandblasting test panels (yes, I mean sandblasting—using Ottawa silica sand) and helping to apply different types of industrial paints for testing (yes, we tested paint). When *JPCL* asked me to prepare a special article for 2012, several topics came to mind, but I kept returning to the same theme. How much progress has our industry truly made in quality over the past 40+ years?

This article compares some of the inspection practices, equipment, and standards that were available in the mid-to late-1960s with those of today—to see how the industry has developed since that time. Have we addressed the problems that were identified by coatings professionals 45 years ago? Have we created new ones? Are we better off?

SSPC-SP 4, "Flame Cleaning," was among the surface preparation standards in the 1963 edition of SSPC Volume 2, Systems and Specifications. Flame cleaning (right) was followed by wire brushing (center) and painting (left) while the surface was still warm. Not used in decades, SSPC-SP 4 was withdrawn in 1982. The photo of an old flame cleaning operation appears in the 1996 edition of SSPC Volume 1.
Photo courtesy of SSPC



Airless spraying in 1966. While airless technology remains the same today, the industry has seen a lot of other changes since that time, including improvements in worker protection. How far have we come?
Photo courtesy of KTA

1960s Technology as Reflected in SSPC Volumes 1 and 2

When I started in this business, the "goto" resource for technical information and standards was SSPC (Steel Structures Painting Council at the time). The most recent edition of SSPC Volume 1, *Good Painting Practice* (Fig. 1), had been published in 1966. It provided educational information on various methods of cleaning and painting, the types of paint to use in different industries, comparative costs for the work (based on labor rates of $1.60/hour), and guidance on inspection. The most recent edition of SSPC Volume 2, *Systems and Specifications*, had been published in 1964. It provided specifications for various grades of surface preparation and paint materials (Fig.1).

Fig. 1: SSPC Volumes 1 and 2 from 1966 and 1964, respectively. Photo courtesy of KTA

Volume 2 included 18 different paint material specifications. Seven of the materials were based on red lead, and three were vinyl. The remainder consisted of alkyds, phenolics, and a cold-applied asphalt mastic. In addition, several paint system specifications had been developed. These specifications packaged all of the requirements for doing a job into a single document (e.g., surface preparation, methods of application, the individual coats required, and the thickness of each). The SSPC paint system specifications were primarily based on oil, alkyd, phenolic, vinyl, and asphaltic materials.

Interestingly, three paint systems were designated as “in preparation.” One was coal tar epoxy, a great performer that has gone out of favor since that time because of health effects. The two others were epoxy and zinc (inorganic and organic), and unlike most of the other materials and systems in the 1964 SSPC Volume, both have passed the test of time and are still widely used today.

The specifications for hand and power tool cleaning and abrasive blast cleaning were originally developed by SSPC in 1952. They were given a complete overhaul in 1963, and Near-White Blast Cleaning was added to them. The primary specifications for cleaning were SSPC-SP 1, Solvent Cleaning; SP 2, Hand Tool Cleaning; SP 3, Power Tool Cleaning; SP 4, Flame Cleaning; SP 5, White Metal Blast Cleaning; SP 6, Commercial Blast Cleaning; SP 7, Brush-Off Blast Cleaning; and SP 10, Near-White Blast Cleaning.

Similar to the paint material specifications, not all of the cleaning specifications survived the test of time. SSPC-SP 4, Flame Cleaning of New Steel, hasn’t been used for decades. SSPC-SP 4 required solvent cleaning in accordance with SSPC-SP 1-63, followed by passing an oxy-acetylene flame across the surface to dehydrate it and release dirt, rust, loose mill scale, and foreign matter. Immediately after the flame was applied, the surface was scraped and wire brushed to remove all loose material, and primed while it was still warm (see p. 14).

The first visual depictions of wire brushing cleanliness and the grades of blast cleaning (except for Near-White) were made available in 1963. The SSPC visual standard had actually been published by the Swedish Standards Association in 1962 (SIS 05 59 00-1962), and adopted by SSPC in 1963 as *Pictorial Surface Preparation Standards for Painting Steel Surfaces*, SSPC-Vis 1-63T. It was updated in 1967 to include photographs consistent with a Near-White degree of cleaning and identified as SSPC-Vis 1-67T (Fig. 2).

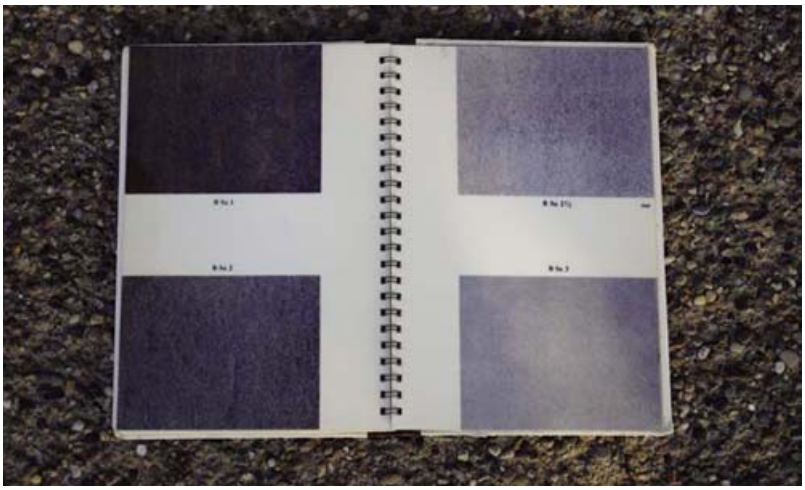


Fig. 2: Swedish Standards in 1967, adopted by SSPC as SSPC-Vis 1-67T. Photo courtesy of KTA

SSPC began to develop its own visual standards in the 1980s with a new SSPC version of VIS 1 published in 1989 as SSPC-VIS 1-89 (Fig. 3). The Swedish Standards were subsequently adopted by ISO as ISO 8501-1. SSPC went on to publish photographs of hand and power tool cleaning, water jetting, and wet abrasive blast cleaning, but SSPC changed the designations from "Standards" to "Guides and Reference Photographs."

Fig. 3: First publication of SSPC's self-prepared visual standard, SSPC-VIS 1-89, Visual Standard for Abrasive Blast Cleaned Steel. Photo courtesy of KTA

The importance of surface profile was recognized, but the profile was typically controlled by the selection of the size of the abrasive rather than by being measured because of the complex measurement process required. The method of measurement recommended by SSPC in 1963 was to grind a spot to the bottoms of the valleys and use a depth micrometer to measure the distance from that point to the tops of the peaks. In 1970, the recommendation was changed to a non-destructive method of measurement with the development of a visual surface profile comparator. The roughness of the profile segments on the comparator disc was visually compared, under 5x magnification, to the roughness of the prepared surface. Today, more precise methods for measuring both surface profile and peak density are available.

It's not feasible in a single article to walk through all of the advances in knowledge and technology since the 1960s. Obviously, the industry has made great strides in many areas, but how far have we really come with respect to inspection and quality? To try to answer that question, I dusted off Chapter Five, "Inspection," of the 1966 edition of SSPC Volume 2. Fletcher W. Shanks and J.L. Rohwedder, who at the time worked at the Rock Island District of the U.S. Army Corps of Engineers, wrote the chapter. Below are a few things said in Volume 2 over 45 years ago, and where I see the industry in each of the same areas today.

1. 1966, Need for Inspection: "The general need for competent inspection of painting work stems from the many variables involved, each of which may have an overwhelming effect on the quality of the job as a whole. The paint itself, surface preparation, mixing and thinning, weather

conditions, thickness of coats, and handling of the coated surfaces are a few of the variables which must be carefully controlled if a durable coating is to be obtained. Unfortunately for the buyer, the final appearance of a poor paint job may be about the same as the appearance of one which was accomplished with the maximum of care."

Today: The statement is as true today as it was in 1966, especially the point that you cannot rely on final appearance to determine the suitability of the work. In-process checks are the only way to confirm the quality of the entire system. While specialized paint inspections are still not a standard requirement on most painting projects today, the use of paint inspectors on project sites has increased since 1966.

2. 1966, Need for Qualified Inspection Personnel: "The need for qualified personnel for paint inspection work is obvious if one considers the complexity and multiplicity of modern protective coatings and the considerable number of operations involved in obtaining a satisfactory paint job."

Today: The concern for qualified inspection personnel is even more relevant today because the number and types of modern coating materials have increased significantly, and the many environmental issues associated with cleaning and painting today dwarf the concerns of 1966.

3. 1966, Inspector and Painter Qualifications and Experience: "The contrast between the desired and actual qualifications of painting inspectors is usually rather painful…

"When one passes into the realm of surface preparation, where experience and judgment are particularly important, the competence of most inspectors is even more questionable…it springs, in part at least, from the rather general disinclination of supervisors and management to attach much importance to painting— and this despite the fact that painting is probably the greatest single item of maintenance cost with respect to most steel structures. Hence, management does not make much of an effort to secure or train competent paint inspectors.

"The painting inspector's problems will often be magnified by incompetence and lack of knowledge on the part of the painters themselves. Very rarely do painters have much detailed knowledge concerning the materials they use."

Today: SSPC, NACE, and private companies have inspector training and certification courses that find widespread acceptance in the industry. While there are many opportunities to receive "book knowledge," a weakness pointed out in 1966 still exists—experience. As experienced inspectors retire, they are being replaced with new inspectors who are long on book knowledge but short on practical experience. In an industry where much of the work involves shades of gray rather than black and white, there is no substitute for hands-on field experience. It is no different from learning to drive a car—you won't be able to parallel park by simply watching a video and reading about it. You need to do it and experience it—over and over again.

The knowledge and skills of professional painters have also improved as a result of training programs available such as ANSI/NACE No. 13/SSPC-ACS-1, Industrial Coating and Lining Application Specialist Qualification and Certification, and the SSPC Coating Application Specialist (CAS) Certification Program. The International Union of Painters and Allied Trades (IUPAT) and Finishing Trades Institute (FTI) have an impressive long-term apprenticeship training program in place to improve the knowledge and skills of their workers.

While the general quality and skill of the inspectors and painters have improved, the skills are of value only if they are actually required on the job. Unfortunately, just as in 1966, there is still a lack of appreciation for the intricacies of painting. Despite the validity of the 1966 statement, "… painting is probably the greatest single item of maintenance cost with respect to most steel structures," many owners still base their inspection and contractor selection decisions on price alone because they can't shake the 'it's just paint' mentality. Improvements are still needed in this area.

4. 1966, Surface Preparation Standards, Guides, and Inspection to the Letter of the Specification: "The standards, guides, inspection tools, and other aids available to the person who inspects the surface preparation of structural steel are notable by their absence."

The 1966 writings also make some interesting points about the letter and spirit of the specification. For example, slight traces of rust might remain in pits when a White Metal Blast was specified, and an additional 30% to 50% in effort would be required to get the surface perfectly clean and uniform in those areas. "Some contractors may maintain that the removal of these final traces of rust down in the deep pits is an unreasonable imposition and need not be accomplished to comply with the intent of the specifications. In view of the wording of the specification the inspector can in good conscience insist that nothing less than a completely uniform surface can be accepted. The resolution of such a conflict of interests must be worked out for each specific case, but it may be suggested here that unyielding insistence that the letter of the specification be adhered to may not always be to the long-range interests of the purchaser. If the purchaser can satisfy himself that a slight relaxation in surface cleaning will not appreciably affect the anticipated paint performance, he should seriously question the advisability of adhering to the letter of the specifications. As a guide in this matter, the purchaser should ask himself what degree of surface cleanliness would be insisted upon if his own organization was accomplishing the work and the cost was borne directly."

Today: Through the work of SSPC and NACE, standards, guides and other educational materials regarding the inspection of surface preparation are readily available. A number of different instruments and visual reference photographs address the degree of cleaning, surface profile, contamination such as soluble salts, and ambient conditions. While improvements can always be made, most of the concerns regarding a lack of instruments and standards expressed in 1966 have been resolved.

Despite great improvement in the availability of standards and instrumentation, one major problem still exists—the subjectivity of the visual assessments of cleaning quality. The reference photographs are helpful, but they are not absolute because they never look identical to the prepared steel. Furthermore, the written words, rather than the photographs, are the standard. While the photographs are of value in "calibrating" the eye, the actual inspection is not black and white; it is subjective and involves interpretation. For example, how is a "stain" of mill scale distinguished from mill scale, and how is the allowable percentage of staining estimated when inspecting a Near-White blast on a large surface? This is where long-term, hands-on experience of the inspector, supervisory personnel, and the company become invaluable. The preparation of jobsite standards to address these issues can also be of benefit.

The above questions are in keeping with the 1966 comments about inspection to the letter of the specification. The inspector must be as objective as possible when making inspections and not arbitrarily accept, for example, traces of rust in the bottoms of pits when White Metal is specified. However, there will be instances where it makes sense for the inspector to raise the flag on very real problems with achieving 100% compliance. In those cases, the purchaser, contractor, manufacturer, and engineer should collectively decide if the spirit of the specification, rather than the letter, should be applied. If a decision to allow a deviation in select areas is agreed upon, it needs to be documented through the specification change process, and the contractor and inspector can then proceed accordingly. The time to raise such questions is early in a project when it appears that 100% compliance will be a problem, rather than after multiple rejections of the work, and productive time and energy are diverted into developing and defending claims. Having all parties work together for the common good of the project still needs improvement today.

5. 1966, Paint Mixing and Application: "Simple though the mixing and thinning of paints may be, the paint inspector should put the observation of these operations high on his priority list. Once he has assured himself that those who mix and thin paints are conscientious and competent he may relax his inspection of these operations somewhat. Until such relaxation is justified, however, the inspector should watch the mixing and thinning of every batch of paint which goes on the surface."

"The use of dry film thickness requirements in paint specifications is excellent, but caution must be exercised to prevent application of paint in unduly thick coats to meet a thickness specification with a minimum number of operations. The appearance of an excessive number of skins, holidays, runs, and sags is an indication that the paint is not being properly applied."

The authors also discuss monitoring surface and air temperature; minimum and maximum drying times between coats; cleanliness between coats including salt contamination; spray technique; the use of stripe coats, and the need for special attention to crevices, corners, welds, bolts, rivets, and sharp edges.

Today: Confirmation of proper mixing remains a key concern today, and many manufacturers and specifiers allow for the mixing only of complete kits to minimize the possibility of blending improper ratios of the components. The advent of plural-component spray equipment adds another dimension to mixing concerns—verification that the equipment is feeding the components to the spray gun in proper proportions.

More specific guidance is provided today on the acceptability of runs, sags, and coating discontinuities, rather than simply stating that their presence is an indication that the paint is not being applied properly.

Finally, all of the concerns regarding cleanliness between coats, drying times, stripe coats, and special attention to difficult configurations apply today, with a wealth of information and studies now available regarding the importance of monitoring these conditions. It is interesting to note that concerns with salt contamination were addressed in the "Inspection" chapter in 1966 as well as in a chapter on "Painting of Highway Bridges and Structures." Despite this long history of concern associated with soluble salts, the detection and remediation of salts is a controversial topic today, especially the thresholds at which soluble salts are of concern when painting a structure intended for atmospheric service.

6. 1966, Paint Application Inspection Equipment: "Although visual observation is the most important part of paint inspection, there are some instruments and mechanical aids which will be of considerable aid to the inspector. From the standpoint that they make the painter aware that his work can be checked during progress and even after it is completed— as in the case of film thickness measurements—these inspection aids can be very helpful." The following instruments are discussed.

- Consistency cup (e.g., Zahn cup)

- Wet film thickness gage (wheel configuration that is rolled across the surface)
- Dry film thickness gage. For field use, a magnetic flux gage based on a horseshoe magnet is discussed in the 1966 SSPC volume (Fig. 4). Magnetic pull-off (banana) gages were also used. Although standards like SSPC-PA 2 did not exist for the adjustment and use of the gages, the importance of calibrating the gage on the blast-cleaned substrate and the measurement of the thickness above the peaks of the blast profile were addressed.
- Wet sponge and high voltage holiday detectors
- Tube thermometers for air temperature, material temperature, and surface temperature. It was suggested that a tube thermometer could be used to measure surface temperature by laying it on the surface, covering the end of the thermometer with putty to seal it to the surface and shield it from drafts, and taking a reading after it had time to stabilize.
- Dry bulb/wet bulb thermometers are mentioned to calculate relative humidity, but there was no mention of dew point and its relationship to surface temperature. Note that one practice done at the time, although not addressed in the chapter, was to wipe a damp rag on the surface. If the water evaporated within a minute or two, the assumption was that the moisture conditions were acceptable and all that had to be monitored were the air and surface temperatures.
- Recording hygrothermographs for relative humidity
- Penetrometer for examining bituminous materials per ASTM D5, “Standard Test Method for Penetration of Bituminous Materials”
- A sharp knife for subjective assessment of adhesion/flexibility of coal tar enamel
- A 5x to 10x magnifying glass and white tissue for determining the amount of contamination on a surface

Fig. 4: This magnetic flux gage was a common instrument at the time. Photo courtesy of KTA

Today: The same categories of instruments exist today, but there have been significant improvements in the technology, with electronic data collection and statistical analysis, and electronic reporting being among the latest advances. Instruments are available to inspect every aspect of the application process, which is good. A downside to the instrumentation, though, is that there is a general tendency to rely on digital outputs without consideration of the reasonableness of the results, especially when the results are displayed in tenths of a mil. The instruments appear to be so precise that total sampling error isn’t even considered when taking measurements (e.g., accuracy, precision, human error, random error, etc.). As a result, careful use and calibration of the instruments (or verification of accuracy) are more critical than ever.

Conclusions

These are just a few comparisons of coatings work performed over 45 years ago with work performed today, but let’s revisit the original question. Are we better off?

Certainly there have been significant advances in coatings technology. In most cases, the coating materials today out-perform their predecessors, and the products are certainly safer for the workers and the environment. There have also been advances in surface preparation equipment and productivity of the operations. While brush, roll, and conventional and airless spray remain the same, new spray equipment has been developed to keep pace with the technology (plural-component) and to increase transfer efficiency (high-volume low-pressure). And without question,

our industry is much more attuned to safety, for the painters themselves and adjacent workers, as well as for the public that may be near the worksite.

Training opportunities for inspectors and painters have increased, and a wealth of research and educational materials has been published to improve the understanding of how coatings work and the steps needed to optimize performance. The number and types of inspection instruments have increased to the point that essentially any step of the process can be monitored. Attempts have been made to reduce subjectivity in the assessments. But has the drive to turn the critical aspects of our work into black and white decisions created new problems for us? Have we unintentionally pushed common sense and reason aside? Has the precision of the instruments, or at least how the results are being interpreted, created additional problems for us today?

For example, a common system used in 1966 involved two coats of coal tar epoxy with a total minimum thickness of 16 mils. With the instruments available at the time, you could quickly confirm that the coating was “about” 16 mils or more. Today, the instruments provide readings in tenths of a mil across the entire range of measurement. This suggests a very high degree of precision for the measurements. Assume in the coal tar epoxy example that the readings in a given area are 15.8 to 15.9 mils. Is that range acceptable? (Note that I am not muddying the water with a discussion of total sampling error or SSPC-PA 2, because even with PA 2, the question is still valid, although perhaps assigned to decisions at the 80% thickness threshold instead.) The old gages would not have even “seen” the few tenths of a mil, and the surface would have been accepted, but what about today? See Figs. 5 and 6.

Fig. 5: The instrument used in 1966 shows a reading on a current pipe coating that would have been accepted as meeting a 16-mil minimum requirement. Photo courtesy of KTA

Fig. 6: A reading with a modern instrument on the same coating measured in Fig. 5 shows 15.8 mils. While the reading shown in

Figure 5 (with the 1966 instrument) indicates that the coating would comply with a 16-mil minimum thickness requirement, is the same conclusion reached when the coating is measured with a modern instrument? Photo courtesy of KTA

Many will reject the 15.8 mils of coating, but is that the right decision? First, the accuracy of both the instrument and the standards used for calibration or verification of accuracy must be taken into consideration. The surface profile can also affect the measurements from point to point on the structure. But even assuming that all of the variables associated with sampling error are taken into consideration, and the measurements in an area are deemed to be 15.8 to 15.9 mils, should they be accepted? Most would argue that there is no difference in performance between 15.8 mils and 16 mils, but would also agree that boundaries must be set. So from the perspective of needing to have absolute boundaries, it becomes easy to reject 15.8 mils because it isn't 16 mils. I am not offering an answer to this question but am simply pointing out that the precision of our instruments today has created controversy in areas that did not exist 45 years ago, and because of the advances in precision, one could question if we are we now unnecessarily removing and replacing coatings due to tenths of a mil, or if we are increasing project costs by adding material to an intermediate coat that appears to be slightly light, without a corresponding increase in performance?

The same holds true with the measurement of surface profile. When requirements for surface profile shifted from simply specifying a mesh size of the abrasive to determining the profile depth with a visual comparator, the profile was typically determined within ½ to 1 mil. Today, instruments for measuring surface profile also provide readings in tenths of a mil. So if a specification requires the profile to be no greater than 2 mils and instrument readings range from 1.9 to 2.2 mils, is the profile acceptable? In the past, when the visual comparator was used, the profile would have been recorded as 2 mils and accepted, but what about today? See Figs. 7 and 8.

Fig. 7: Surface profile would be reported as 2 mils using the comparator (the surface closely matches the bottom left segment) and accepted as meeting a maximum 2-mil specification requirement. Photo courtesy of KTA

Fig. 8: The replica tape shows the profile of the same surface shown in Fig. 7 as 2.15 mils. Should this be accepted as meeting a maximum 2-mil specification requirement? Photo courtesy of KTA

First, it needs to be recognized that the surface profile is not uniform and it will vary across the surface, so accepting or rejecting a surface profile based on tenths of a mil in a given area is suspect. Further, it is unlikely that any coating manufacturer has data demonstrating that a coating system that performs over a 2-mil profile will fail at 2.1 or 2.2 mils. It is again recognized that thresholds need to be established; otherwise, there is no control, but should the readings be rounded to the nearest half mil, at least for some coatings?

Assume that a Near-White blast is specified for a structure in atmospheric service and thousands of square feet of steel have been satisfactorily blast cleaned, except that 25 islands of intact mill scale are found scattered across the surface. The islands measure ⅛ inch in diameter and therefore cover less than ½ square inch when combined. This is a clear violation of the written requirements of the specification because no mill scale is allowed to remain, but does this condition warrant the cost and time to re-blast clean the surface to address each of the small islands? Is there any room for compromise?

Have we tried to become so precise in the design and implementation of painting work that our specifications and inspections are outpacing the ability of the work to comply, even under ideal circumstances? And more importantly, has fear of litigation, rather than concern for the technical aspects of the work, shaped our industry to such a point that the answer in most any dispute is to hide behind the specification and say, "It doesn't comply, do it over." I'll leave you with this comment from the authors in 1966 that I quoted earlier. It was written at a time before litigation became such a sport in our industry: "As a guide in this matter, the purchaser should ask himself what degree of surface cleanliness would be insisted upon if his own organization were accomplishing the work and the cost was borne directly."

Editor's Note: This article by Ken Trimber is part of the series of Top Thinker articles appearing in *JPCL* throughout 2012. Mr. Trimber is one of 24 recipients of *JPCL*'s 2012 Top Thinkers: The Clive Hare Honors, given for significant contributions to the protective coatings industry over the past decade. The award is named for Clive Hare, a 20-year contributor to *JPCL* who shared his encyclopedic knowledge of coatings in many forums. Professional profiles of all of the award winners, as well as an article by Clive Hare, were published in a supplement to the August 2012 *JPCL*.

Technical Program Covers Protective, Marine, and Commercial Coatings

From *JPCL*, December 2012 | Free Product Information

Table of Contents

President's Welcome
Special Events, Awards Planned for Attendees
Attendees Can Hone Their Skills in San Antonio
SSPC 2013 Offers Well-Rounded Workshops
Technical Program Covers Protective, Marine, and Commercial Coatings
SSPC Committees Plan to Meet in San Antonio
Exhibitors to Bring Their Finest to SSPC 2013
Exhibitors at a Glance
SSPC 2013 Daily Schedule
Conference Registration Form

The technical program runs for four days with tracks covering a wide range of topics in the industrial, marine, and commercial coatings industries. The following pages provide the dates, times, titles, presenters, and company affiliations, as well as a brief abstract of each paper. All information is current as of press time; visit www.sspc2013.com for updates and more information.

Monday, January 14

Surface Preparation—The Foundation of Every Coating Project

• 1:30–2:00 p.m., "Steps to a More Effective Blasting Operation," by Kumar Balan, Wheelabrator Group

The presenter will discuss the basics of blast cleaning including mechanical surface preparation basics, process control and the impact on quality and operating cost, allied techniques in shot blasting and lessons to learn, and the future of surface preparation.

• 2:00–3:00 p.m., "Cool, Dry, or Both: When is Cooling Equipment Appropriate as a Dehumidifier?" by Don Schnell, DRYCO, LLC

This presentation will detail the differences between cooling type dehumidification and desiccant dehumidification and will identify where each is appropriate. Attendees will learn the basic concepts that make a refrigeration type dehumidifier work on the industrial painting project. Basic operation and maintenance will be discussed, along with ideas to make the equipment bring the most value on the job.

• 3:00–3:30 p.m., "Surface Profile—A Comparison Analysis of Measurement Methods," by David Beamish, DeFelsko Corporation

This paper explains how to measure peak-to-valley profile height and determine peak count

(density) using three device types. An SSPC standard will describe a procedure for determining compliance with specifications. This paper reviews those documents and discusses results from a recent ASTM round-robin study.

• 3:30–4:00 p.m., "New Developments in Surface Profile Measurement for Blast Cleaned Surfaces," by John Fletcher, Elcometer Limited–UK

This paper describes the equipment that is currently available for ASTM D 4417 test methods and discusses the differences in both the methods and the resulting measurements. The significance of these differences will be analyzed in the context of typical grit and shot blasted surfaces.

Working in the Coatings Industry—What You Need to Know

• 1:30 –2:00 p.m., "Creating a Culture of Safety: Are You Compliant or Committed?" by Greg Jochims and Doug Sams, Allen Blasting and Coating

This presentation will include systems that attendees can implement ASAP to increase their safety awareness. Handouts will include management training, checklists, and forms, and the training to use these tools effectively. The presenters will also discuss the importance of a PJHA (Pre Job Hazard Assessment) and how it can help you avoid litigation.

• 2:00–2:30 p.m., "Using Virtual Reality to Help Teach Application Techniques," by Matthew Wallace, VRSim, Inc.

The focus of this presentation is to introduce, explain, and demonstrate the uses of gamifiction and simulation in the workplace-training environment. Specific focus will be given on what simulation and gamification does well, and where its current iteration fails to live up to its promise.

• 2:30–3:00 p.m., "History of Corrosion Resistance," by Joe Larson, ACT Test Panels LLC

This paper narrates the improvements in corrosion resistance, with a strong automotive bent, made during the author's tenure. Included are anecdotes, observations, and insights gained from interaction with many technical personnel over the years. It defines the confluence of multiple factors including steel manufacturing, new facilities being built, interesting new technologies, and the influence of competition.

• 3:00–3:30 p.m., "Corporate and Professional Online Reputation Management (ORM)," by Nicole Eisenhauer, Eisenhauer Creative Group

Attendees will discover the volume and location of content related to them on the Internet. The presenter will show how to manage online content, mitigate negative feedback, and communicate effectively in confrontational web dialog.

• 3:30–4:00 p.m., "How to Buy a Coatings Company with Limited Resources," by Robert J. Ziegler, BBZ Consulting

This paper will explore the buyers' attitudes toward risk, management, available funds, and borrowing ability. There will be information on what to look for in a company you are considering purchasing, examining several key parameters such as markets, reputation, key people and customers, and percentage of sales per month of each customer.

• 4:00–4:30 p.m., "SSPC Education Committee Update," by William Corbett, PCS, KTA-Tator, Inc.

This presentation will describe the goal of SSPC's Education Committee, its organization and duties, and the interactions with the instructor committee. It will provide the status of product review/updating. The mission of the SSPC Education Committee is to provide SSPC members and the industry with technically accurate, effective, IACET-compliant coatings education products and training services.

Antorcha de Amistad by River Center Courtesy of Richard Nowitz/SACVB

Tuesday, January 15

Coatings That Beat the Heat

• 8:00–8:30 a.m., "When Undercover Agents Are Tested to the Limit: Coatings In Action (CIA) and Corrosion Under Insulation (CUI)," by Mike O'Donoghue, Ph.D., International Paint, LLC

This paper is a "high-temperature" sequel to previous investigations of four specialty inorganic coatings said to prevent corrosion under wet insulation conditions. In the present work, two of the specialty coatings have been tested again, and performance was assessed using visual examination, EIS, optical microscopy, SEM, and Keyence Digital Microscopy. Lab investigations were also undertaken.

• 8:30–9:00 a.m., "Waterborne Thermal Insulation Coatings," by Sudhir Achar, The Dow Chemical Company

The paper will discuss the formulation and application properties of thermal insulation coatings based on waterborne acrylic and epoxy resins. Their potential use in thermal insulation and safe-touch applications will be described through results on thermal conductivity, the ability to reduce energy usage, safe-touch properties, and corrosion performance in multi-layer systems.

• 9:00–9:30 a.m., "Introduction to Insulative Coatings," by David Hunter, Mascoat

The presentation will teach attendees what are and are not insulative coatings; how insulative coatings work in comparison to some traditional systems; the advantages of using them in facilities to improve operations, safety, and financial performance; and the limitations of the technology.

• 9:30–10:00 a.m., "Selection of Coatings for CUI Service," by Michael MeLampy, Hi-Temp Coatings Technology, Inc.

A review of past and current technologies for preventing CUI will be presented. The initial and long-term costs, performance characteristics, expected service life, as well as ease of application and repair of coatings used under insulation will be discussed. There will also be field and laboratory performance experience obtained from users, third-party laboratories, and vendors.

Concrete Protection Solutions

• 8:00–8:30 a.m., "Polyurea 'Loose' Liners: A Band-Aid for Excessively Cracked Concrete," by Kristin Leonard, Bechtel Corp.

This paper outlines the trials and challenges of modifying the membrane liner to accommodate stringent chemical resistance criteria, poor concrete conditions, and hundreds of pre-installed obstacles. From detailed design to installation mock-up, the pros, cons, and lessons learned are discussed.

• 8:30–9:00 a.m., "Preparing and Lining Concrete for Immersion Service: Steps and Procedures to Avoid Failures," by Robert Maley, Corrosion Probe, Inc.

The intent of this paper is to demonstrate that concrete substrates present many unique challenges, arguably more so than steel.

• 9:00–9:30 a.m., "What's New About Repairing Cracks in Concrete," by Rick Yelton, Hanley Wood Business Media

Spurred by the efforts of the Strategic Development Council, Vision 2020 has provided a roadmap on how to improve the concrete repair and protection industry. This session will update attendees on the current results and ongoing industry lead research on this initiative.

• 9:30–10:00 a.m., "Old Coat, New Threads," by Todd Gomez, PC, John Winfrey, and Dudley Primeaux, VersaFlex Incorporated

The presenters will discuss the progression from traditional gel coat systems to new advanced polyurea technology and its significance to the protective coatings industry in the effort to develop green products.

Defending Against Corrosion in the Military

• 8:00 –8:30 a.m., "Operation: Combined Effort," by Dr. Roger D. Hamerlinck, Office of the Assistant Secretary of the Army: Acquisition, Logistics, and Technology—Office of the Army Corrosion Control and Prevention Executive

The presenter will discuss the Army's efforts for corrosion prevention and control.

• 8:30–9:00 a.m., "Marine Corps Corrosion Prevention and Control (CPAC)," by John Repp, Elzly Tech

This paper summarizes the work that has been underway for the past four years under the CPAC program. Highlights of established processes, solution implementations, and program successes will be provided. Finally, the vision and long-term mission of the CPAC program will be discussed.

• 9:00–9:30 a.m., "Single-Component Polysiloxane Coating for Navy Topsides," by Erick B. Iezzi, Ph.D., Naval Research Laboratory

The presenter will discuss how the Naval Research Laboratory has recently designed and patented a novel single-component polysiloxane coating for Navy topsides.

San Antonio lights Courtesy of J. Leeth/SACVB

• 9:30–10:00 a.m., "Corrosion Control Knowledge Sharing Network: Fighting the War on Corrosion from Multiple Fronts," by Steve Melsom and Linda Stiles, NAVSEA

The presenters will discuss how the Corrosion Control Knowledge Sharing Network is streamlining efforts to fight corrosion.

Coatings Issues and Solutions—Commercial Structures, Sponsored by Durability + Design

• 10:30–11:00 a.m., "Selection and Specifications for Architectural and Industrial Maintenance Coatings for Commercial Architecture," John C. Williams, HOK

This presentation will discuss potential for contamination or damage to shop-applied coatings that must be addressed in the field during or after steel erection and touch-up/repair coating processes and materials. Examples from projects will be included.

• 11:00–11:30 a.m., "No Place for Hipsters When the Substance Behind a Pretty Façade is Required," by Cynthia O'Malley, KTA-Tator, Inc.

The presenter will talk about how a company's brand image projects by paints and coatings requires performance characteristics derived from consistently sound chemistry and manufacturing. There will be a brief synopsis of applicable performance evaluations in both industrial and commercial sectors, presented together with the concept of baseline characterization of the coatings.

• 11:30 a.m.–Noon, "Elastomeric Acrylic Coatings for Use on Commercial Structures," by Leo Procopio, The Dow Chemical Company

This paper will explore the chemistry of elastomeric acrylics, techniques for their evaluation in the laboratory, a discussion of the various applications where they are utilized and the expected performance, and results of accelerated and natural exposures and real-world case studies.

• Noon–12:30 p.m., "The Quest for Success in Accelerated Weather Testing for High-Performance Architectural Coatings," by Allen Zielnik, Atlas Material Testing Technology, LLC

The presentation will summarize current test methods for weather testing high-performance coatings used in architectural applications, including accelerated outdoor and laboratory procedures, and will discuss the development of an improved method designed to correlate to outdoor and laboratory testing. This test method will be proposed as a new ASTM standard.

• 1:30–2:00 p.m., "Laboratory and Field Testing of Thin-Film Air Barrier Coatings Applied to CMU," by Kevin Knight, Retro Specs, Ltd.

This paper will address the new requirements of the 2012 International Energy Conservation Code for the building envelope to be carefully designed to limit uncontrolled air leakage into and out of buildings. It will explain what properties and tests are needed to evaluate thin film coatings on concrete masonry unit assemblies both in the laboratory and in the field for QA/QC.

• 2:00–2:30 p.m., "Moisture in Historic Commercial Building Walls—Approaches to Assessment and Restoration," by John Harry, John Harry Restoration Services

The presenter will discuss the assessment of five historic buildings in North Carolina that were experiencing building envelope-related moisture intrusion problems. The methods and results of the evaluations will be discussed, along with the sometimes-inconsistent results.

• 2:30–3:00 p.m., "Painted Aluminum—Concerns with Fabrication Details and Exposure," by Kirk Shields, GPI/Greenman-Pedersen, Inc.

This paper illustrates examples of how coatings might fail on painted aluminum extrusions and the resulting options to correct the coating defects in the field.

• 3:00–3:30 p.m., "Moisture Issues and Mitigation Strategies for Concrete Surfaces," by Fred Goodwin and Frank Apicella, BASF Construction Chemicals, Inc.

The presentation will define factors that influence concrete moisture vapor emission and remediation methods, describe current methods used to measure moisture in concrete, and discuss current standards for moisture emission.

• 3:30-4:00 p.m., "The Next Step in Solar Reflectance Testing for Roofing Products," by Matthew Lendzinski, Dow Chemical Company

The presentation will focus on the deposit of dirt and the test for predicting long-term dirt resistance based on sound laboratory testing, careful research, and statistical methodology.

• 4:00–4:30 p.m., "Update on the Activities of the SSPC Commercial Coatings Committee," by Ken Trimber, KTA-Tator

The presentation provides an update on the committee's progress in drafting standards and guidance documents in the last year. Documents currently under development include: measuring moisture content in concrete and masonry walls; selection of exterior elastomeric coatings; testing and maintenance of coated concrete floors; laboratory testing to evaluate thin film coatings on CMU assemblies; and the body of knowledge, experience, and skill requirements for qualifying and certifying commercial coating applicators.

True Stories of Coatings in Action

• 10:30–11:00 a.m., "Performance or Preference? Anoka Tank Reconditioning Revisited," by Dan Zienty, PCS, Short Elliot Hendrickson, Inc.

This presentation revisits the reconditioning of the 400,000-gallon water tower in Minnesota and

will identify the importance of follow-up tank maintenance, alternatives for protecting hard to paint areas, repair sequence following long-term service, and potential for single-coat application of zinc above the water line.

• 11:00–11:30 a.m., "San Antonio Power Plant Asset Corrosion Protection Program," by Mario SanJuan, P.E., CPS Energy, and Kirk Wissmar, P.E., KTA-Tator, Inc.

The presentation details from conception to completion the asset protection study CPS initiated for their fossil-fueled power generating facilities.

• 11:30 a.m.–Noon, "Rehabilitation and Lead Abatement of Water Tanks in a Residential Area," by Travis C. Tatum, P.E., and Jimmy Dunham, P.E., Dunham Engineering, Inc.

This paper will discuss the initial evaluation, project design, construction, and inspection procedures for significant structural repairs and coating replacement on a 60-year-old, one-million-gallon, welded steel elevated water storage tank in Texas.

• Noon–12:30 p.m., "Quagga Mussel Coatings Project," by Randall Witowski, Metropolitan Water District of Southern California

The presenter will review the process of preparing a substrate using a system that is as unique as the Quagga mussels themselves, and the results of the application after one year.

• 12:30–1:00 p.m., "The Good, Bad, and Ugly After 35 Years Involved with Coatings," by Bryant (Web) Chandler, PCS, GPI/Greenman-Pedersen, Inc.

This paper will present coating examples on all types of substrates, ambient conditions at 0 F to 120 F, what went right or wrong, and what should be done next time, if anything.

Defending Against Corrosion in the Military II

• 10:30–11:30 a.m., "Partnering with SSPC in the Pacific Rim," by Dan Dunmire, Office of Under Secretary of Defense Acquisition, Technology, and Logistics

In 2013, the DoD is focusing on corrosion in the Pacific Rim, which is affected by the entire range of microclimates. Protective coatings are critical to the initial protection of infrastructure and warfighting assets, and the DoD is partnering with SSPC to study and evaluate the Pacific Rim's environmental conditions and develop solutions to the incidence and impact of corrosion. The focal point on corrosion in the Pacific Rim will be the DoD Corrosion Conference in Hawaii in Sept. 2013.

• 11:30 a.m.–Noon, "The Science of Formulating Aircraft Depaint Materials," by Chris Hensley, Aerochem, Inc.

This presentation will cover a scientific approach to the development of aircraft paint removers.

• Noon–12:30 p.m., "Recycle Vacuum Blasting," by Dominic J. Jordan and Kjetil Roksvag, Pinovo AS

This presentation will cover the latest technology in innovative, closed-loop, vacuum-based abrasive blasting equipment for surface preparation.

Green Evolution

• 10:30–11:00 a.m., "Corrosion Control Without the Use of Toxic Heavy Metals," by David Tarjan, HALOX—A Division of ICL Performance Products LP

This paper captures specific technologies reflecting the new paradigm shift based on heavy metal-free inorganic pigments, as well as non-toxic organic corrosion inhibitors.

• 11:00–11:30 a.m., "Newest Additives for Green Coatings," John Du, BYK USA Inc.

An overview of new additive technologies will be presented with special emphasis on wetting and dispersing and surface and flow, including some new applications for additives containing nanotechnologies.

• 11:30 a.m.–Noon, "How Can Companies Go Greener? (…Psst: Without Losing Performance)," by Anders Braekke, Jotun A/S (HQ)

This is a presentation of five simple steps to "go greener" in international specifications without losing performance or blowing your budget. The author will focus on actions that can be implemented in an easy way.

• Noon–12:30 p.m., "Are You Restricted By Your Total Solar Reflectance Performance?" by Ian Goodwin, Huntsman

The presentation will review the performance of a new solar reflective pigment in a range of colored coating systems. The new pigment enables formulators to increase solar reflection in a broad range of colors, especially deep, dark colors.

Looking Down at Concrete Floor Protection

• 1:30–2:00 p.m., "QP 8 Certification," by John Russo, Blendex Industrial Corporation

This presentation will discuss the SSPC-QP 8 contractor certification program, which evaluates the qualifications of contractors hired to install polymer coatings or surfacings on concrete and other cementitious surfaces.

• 2:00–2:30 p.m., "An Overview of Petrographic Examination of Concrete as Related to Polymer Floor Coating Failures," by Jon Asselanis, Applied Materials and Engineering, Inc.

This presentation is a review of important issues that SSPC members need to know when attempting to understand the behavior of polymer coatings and surfacings. Attendees will learn how to determine the appropriateness of an ASTM standard and understand how the tests are conducted and what the corresponding results mean.

• 2:30–3:00 p.m., "Understanding Slip Resistant Regulations and Standards and Achieve Specific SCOF Values," by Tim Post, SSPC Polymeric Flooring Advisory Committee

This study presents all current requirements and clarifies what is necessary to be compliant with applicable standards and regulations, and addresses the installation techniques and materials to achieve specific SCOF values.

• 3:00-3:30 p.m., "Are Organic and Inorganic Polymer Concretes an Effective Alternative to Coating Concrete for Maximum Life Expectancy?" by Gary Hall, Pete Jansen, and Lake Barrett, Sauereisen, Inc.

This presentation provides an overview of organic and inorganic polymer concrete technology relative to the common practice of polymer coatings over Portland-based concrete. The presentation utilizes an asset management approach and supplements the discussion with actual case studies.

• 3:30–4:00 p.m., "Adhesion Studies of Floorings and Coatings to Concrete with Various Preparation Methods," Mike Houx, West Coast Industrial Flooring, and Steve Schroeder, Dex-O-Tex

The presenters will summarize the current adhesion test methods and standards, introduce the devices currently available for testing floor adhesion, and report on the findings of a series of adhesion tests on concrete.

• 4:00–4:30 p.m., "Polymeric Flooring Advisory Committee Town Hall Meeting," by Steve Schroeder, Dex-O-Tex, and John Russo, Blendex Industrial Corporation

This presentation is on the development of the committee and reading of the committee charter. Discussion will include what the committee has been doing since its formation, an announcement about C7 committee reactivation to update and revise TU-10, and an open forum as to PFAC goals and direction for the next year.

Bridge Painting and Protection

• 1:30–2:00 p.m., "Keeping the Schedule for the Charles De Gaulle Bridge," by David Simkins, Polygon US Corporation

The presenter will discuss how contractors accelerated coating work and finished work on the Charles de Gaulle Bridge nine months ahead of schedule.

• 2:00–2:30 p.m., "Successful Bridge Painting in the Northeast During the Winter Months: Pros and Cons from Owner and Contractor," by Matthew McCane and Peter McDonald, GPI/Greenman-Pedersen, Inc.

This presentation will explain some of the details encountered when bridge painting is performed during the winter months in the Northeast, including containment systems, specialized equipment, and quality control procedures.

• 2:30–3:00 p.m., "Brooklyn Bridge—Repainting the Most Iconic Structure in the World," by Guerman Vainblat, GPI/Greenman-Pedersen, Inc.

This presentation will address complex project questions about the monumental task of de-leading and repainting the Brooklyn Bridge. Details will be provided on daily issues being faced and measures the project team is taking.

• 3:00–3:30 p.m., "Bridge Coating in Japan: Doing it Right the First Time," by Winn Darden, AGC Chemicals Americas

The presenter will discuss the history of the Japanese road authorities' field and laboratory testing leading to the adoption of the use of fluoropolymer topcoats on bridges. Examples of completed bridges will be shown.

• 3:30–4:00 p.m., "The Use of Coatings with Optically Activated Pigments (OAPs) on KYTC Bridges," by Bobby Meade and Ted Hopwood, GPI/Greeman-Pedersen, Inc.

The presenters will discuss a research study that was initiated to develop laboratory methods for evaluating the effectiveness of optically active pigments (OAP). Laboratory work included constructing mock bridge beams to be coated with OAP for inspection effectiveness evaluation and accelerated weathering testing for performance.

• 4:00–4:30 p.m., "The Cure for the Common Cold: A Checklist for Heating Bridges During Winter Coatings Applications," by Russ Brown, Polygon

This paper will outline the main considerations for ensuring that a bridge project can be completed successfully even in the coldest temperatures. There will be a review of typical heaters used for bridge work, sizing guidelines, site logistics, and fuel type considerations.

Wednesday, January 16

Protecting Ships and Marine Structures

• 10:00–10:30 a.m., "NSRP Surface Preparation and Coating 2013 Update," by Stephen Cogswell, BAE Systems Southeast Shipyards

This paper is an overview of the NSRP Surface Preparation and Coating Panel's (SPC) mission to reduce the cost of building, repairing, and maintaining U.S. Navy ships. There will be an overview of the Panel's work from 2010 to the present.

• 10:30–11:00 a.m., "Tralopyril Metal Free Marine Anti-Foulant Update," by Dave Helmer, Janssen PMP

The presenter will discuss tralopyril-based coatings as an antifoulant and will present the methodologies and results of a multi-year study of tralopyril in hull coatings and marine environments.

• 11:00–11:30 a.m., "Electrochemical Impedance Spectroscopy (EIS) Analysis of Freshwater Foul-Release Coatings," by Bobbi Jo Merten, Ph.D., U.S. Bureau of Reclamation

This presentation will cover a two-year experiment in which foul-release coating systems were examined by electrochemical impedance spectroscopy to measure the degradation of coating dielectric properties in immersion.

• 11:30 a.m.–Noon, "Anomalies, Ambiguities, and the Certain Uncertainties of Ballast Tank Corrosion Protection Systems and Regulations," by Skip Vernon, Coating and Lining Technologies, Inc.

This presentation will be a discussion and review of an actual case where issues with a ballast tank corrosion protection system led to a $52 million dispute. Strategies for addressing the issues contractually and avoiding claims will be presented.

• 3:00 –3:30 p.m., "Evaluation of 'Spot-and-Sweep' Blasting as a Cost Effective Method of Underwater and Outer Hull Surface Preparation," by Gordon Kuljian, PCS, GK Consulting

This paper summarizes a recent NSRP project that successfully demonstrated the implementation of high-speed spot-and-sweep blasting and monitored simple metrics. A detailed cost analysis of incorporating this method as part of routine fleet maintenance will be presented.

• 3:30–4:00 p.m., "Polymeric Interior and Exterior Marine Decking Systems," by Jing Zeng, ITW Polymer Technologies

This article will discuss the technologies and applications of the current systems in the polymeric marine decking industry.

• 4:00–4:30 p.m., "Severe Erosion in Pump Casings," by Allen Skaja, Ph.D.; David Tordonato, Ph.D., P.E.; and Bobbi Jo Merten, Ph.D., U.S. Bureau of Reclamation

The presenters will discuss challenges with coatings on pump casings, compare laboratory tests and field results, cover the need for a new standard, and compare ceramic epoxy and elastomeric coatings.

• 4:30–5:00 p.m., "Modernizing Shipbuilding with Blast and Paint Facility," by Katie Urbas, NASSCO

This presentation will discuss how NASSCO transformed its marine blasting and painting operations from portable domes to a world-class facility. After three years in service, the facility's transformation has directly and indirectly improved on many aspects of the build process.

Coating Technology for the Aerospace Industry

• 10:00–10:30 a.m., "The Critical Truth Regarding Aerospace Coatings and Flight in the 21st Century," by Matthew Thomas, Standard Aero

This presentation discusses the "truths" about aerospace composite substrates, chrome vs. non-chrome pretreatments and primers, and the Aerospace Coatings Applicator Certification.

• 10:30–11:00 a.m., "Chemical Reactivation of Exterior Decorative Aerospace Livery Coatings," by Douglas Berry, The Boeing Company

This paper discusses the material properties and application processes of aerospace decorative livery, analytical tests used to develop and understand the chemical reactivator, and performance tests used to qualify the chemical reactivator.

• 11:00–11:30 a.m., "Chemically Depainting Aircraft Composites," by Chris Hensley, Aerochem, Inc.

This presentation will cover different composite substrates and resins systems used in military and commercial aircraft. It also covers the importance of the coating systems applied to aircraft composites along with their application and proper methods of curing. The core content will introduce and discuss how an effective paint remover can be formulated and applied as a safe alternative to more complex and labor intensive methods.

Wastewater Coating Challenges and Solutions

• 10:00–10:30 a.m., "Martin 'B-C' Zone Reservoir Liner Replacement—An Owner's Perspective," by Dorothy Dolan, Tucson Water

This paper will discuss the owner's perspective on factors involved in the decision to replace a deteriorating rubber lining with a flexible urethane membrane in a concrete potable water storage facility.

• 10:30–11:00 a.m., "Martin 'B-C' Zone Reservoir Liner Replacement: Doing Our Part for the Tucson Water Department Construction/Inspection Team," by Eric Brackman, RFI Consultants LLC

This paper focuses on the role the independent coating consultant and inspector plays within the Tucson Water Department Construction/Inspection team as the department implements a program to evaluate and repair 70 concrete and steel potable water storage facilities.

• 11:00–11:30 a.m., "Plural Material Application Does Not Have to be Difficult," by Brian Ketel, Graco, Inc.

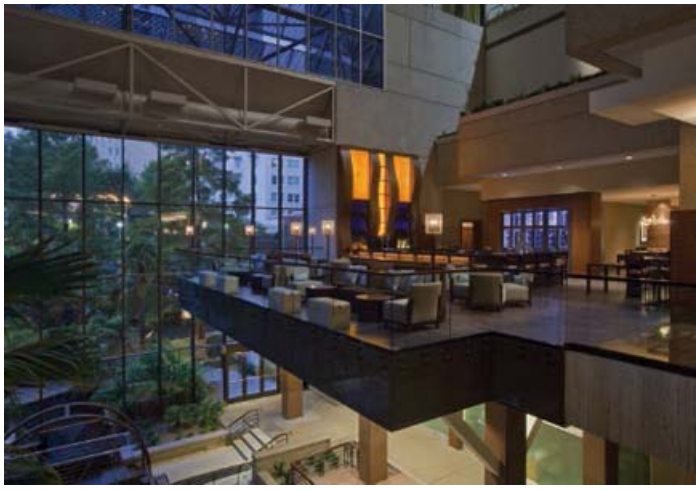
This presentation discusses the benefits that plural component equipment can provide and its value to the coatings contractor's success and profitability.

• 11:30 a.m.–Noon, "Working Together—20 Million Gallon Concrete Relining Project Done On Time and On Budget," by Bob Murphy, PCS, The Sherwin-Williams Company

This presentation will highlight the advantages in utilizing 100% solids polyurethane technology in meeting difficult project timelines and environments.

• Noon–12:30 p.m., "Lessons Learned in Coating Water and Wastewater Treatment System Structures," Manuel Najar, P.E., V and A Consulting Engineers, Inc.

This paper will present a number of important design considerations based on lessons learned that can avert lining performance problems and appropriate lining material selection. Specific examples from projects will be used to illustrate these design considerations.



Q Bar, Hyatt Regency San Antonio Courtesy of SACVB

Green Evolution II

• 3:00–3:30 p.m., "Case Studies on Applying Coating and Alternative Products at Height," by Chris Bates, Spider

This presentation will highlight case studies on wind turbine coatings projects and work at height on other structures, drawing from the success stories of multiple contractors and facility owners.

• 3:30–4:00 p.m., "Field Applied UV Curable Coatings for Concrete Flooring," by Jo Ann Arceneaux, Cytec Industries, Inc.

This presentation will highlight the latest resin and coating developments that address some of the challenges identified during the introduction of UV technology in field applied concrete flooring.

• 4:00–4:30 p.m., "Ice Phobic Coatings for Wind Tower Blades and Structures," by Rob Thomaier, NuSil Technology, LLC

This paper discusses the evaluation of silicone coatings as ice-phobic coatings for wind power blades.

• 4:30–5:00 p.m., "Novel Waterborne One-Pack (1K) Epoxy Technology for Corrosion Protection," by Dr. Florian Lunzer, Cytec Industries

This presentation will explore critical aspects, benefits, and challenges of the novel, waterborne 1K epoxy versus traditional 1K and 2K coating systems.

Thursday, January 17

The Future of Protective Coatings

• 10:00–10:30 a.m., "Self Stratified Inorganic/Organic Nanocomposite Coatings: The Next Leap in Coating Performance," by Mark Soucek, University of Akron

This presentation discusses research of inorganic/organic hybrid materials for coating usages.

• 10:30–11:00 a.m., "A Novel Alternative Surface Preparation for Duplex Coating of Galvanized Steel," by Richard Schertzer, Madison Chemical Industries, Inc.

This presentation details a novel surface preparation process that is suitable for many moderate to heavy-duty service applications on galvanized steel, including atmospheric and embedded service.

• 11:00 a.m.–Noon, "Titans of the Abyss: Polyurethane, Polyurea, and Hybrid Lining Technology," by Mike O'Donoghue, Ph.D., International Paint, LLC

This paper will focus on very fast cure, solvent-free polyurethanes, polyureas, and hybrid technologies, many of which are well-suited to immersion service.

• Noon–12:30 p.m., "In-Situ Coating Method for Cleaning and Coating of Internally Corroded Pipelines in the Field," by Baker Hammad, BSH Engineering Consultant Office

This presentation will discuss the in-situ coating method as a potential alternative to new pipe replacement.

Environmental, Health, Safety, and Regulations

• 10:00–10:30 a.m., "TCEQ Coating Hot Topics and Regulatory Resources," by Glenda Swierc, MS, CHMM, Texas Commision on Environmental Quality

This session will consist of an overview of the Texas Commission on Environmental Quality Small Business and Local Government Assistance program, which provides numerous tools and resources to help the regulated surface coating community comply with environmental regulations.

• 10:30–11:00 a.m., "REACH and Its Grasp on the Protective Coatings Industry," by Heather Stiner, PCS, SSPC, and Heather Ramsey, Sauereisen, Inc.

This paper will focus on how the European regulation known as REACH (Registration, Evaluation, Authorization, and restriction of CHemical substances) affects U.S. companies in regards to restriction on chemicals; hazardous and non-hazardous classification, labeling, and packaging; and SDS standardized format.

• 11:00–11:30 a.m., "Regulatory Update: Current and Emerging Trends in Occupational and Environmental Health," by Alison B. Kaelin, KTA-Tator, Inc.

This annual paper summarizes environmental, health, and safety issues that may impact SSPC members.

• 11:30 a.m.–Noon, "A Walk Through the River of OSHA Regulations Relating to Abrasive

Blasting," by Tom Enger, Clemco Industries, Corp.

The presenter will discuss each OSHA regulation relating to abrasive blasting and OSHA's interpretation of those regulations.

Inspection—Assuring Performance and Quality

• 10:00–10:30 a.m., "Third Party Inspection: The Good, the Bad, and the Ugly," by Tom Schwerdt and Johnnie Miller, Texas Department of Transportation (TxDOT)

This paper covers the benefits, drawbacks, and lessons learned from implementing and overseeing a third party inspection program at the TxDOT.

• 10:30–11:00 a.m., "Practical Coating Thickness Measurement Overview," by Paul Lomax, Fischer Technology Inc.

In this presentation, there will be a coating thickness measurement overview, followed by discussion on solutions for meeting the goals of reducing costs, lessening errors, and increasing quality.

• 11:00–11:30 a.m., "'Standard of Care' for Coatings Inspection," by Peter Ault, Elzly Technology Corporation

This paper will explore the concept of a 'Standard of Care' as applied to coating inspection on industrial coatings projects.

• 11:30 a.m.–Noon, "Optical Safety and Visual Ergonomics for Fluorescent (OAP) Coatings Inspection," by Paul D. Gossen, Paul D. Gossen, LLC

This paper summarizes the results of an expert review funded by the NAVSEA Painting Center of Excellence to determine the symptoms caused by the visual ergonomics of viewing intense violet lights and ensure that the appropriate worker safety standards are being applied.

High Performance Coatings

• 3:00–3:30 p.m., "Spray-On Ceramic Insulation Up To 450 C and Encapsulating Existing Corrosion Without Sandblast," by Joseph Pritchett, Superior Product International II, Inc.

This paper will discuss research using trial and error to determine how compounds would act in a paint/coating form, followed by a study on corrosion encapsulation without the need for sandblasting.

• 3:30–4:00 p.m., "Viscous Elastic Coating and Sealants: How They Are Unique and Different From Conventional Corrosion Prevention Coatings," by John Glass, Amcorr Products and Services, Inc.

The presenter will cover the unique chemistry of viscous elastic coatings and sealants and its permanent wetting characteristics.

• 4:00–4:30 p.m., "How Design Features Unique to AP1000 Power Plants Affect Coating System Design Requirements," by Mike Durbin, The Sherwin-Williams Company, and Pat Ward, Shaw Power Group

This paper disusses the AP1000 containment coating system design bases and illustrates how these differ from those for conventional nuclear power plants. The overall Balance-of-Paint coatings design policy for the AP1000 plants is also outlined.

• 4:30–5:00 p.m., "New Anti-Fouling Technology Applied to Prevent the Growth of Invasive Species on the Southern Delivery Project in Pueblo, CO," by Brett Allison, Coblaco Inc., and Charles Fisher, FujiFilm Smart Surfaces

The presentation will outline the process and procedure of lining the conduit of a 62-mile steel pipeline with an anti-fouling coating system.

Field and Laboratory Testing

• 3:00–3:30 p.m., "Comparing Multiple Weathering Techniques Among Various Coatings Chemistries," by Veronica Coleman, The Sherwin-Williams Company

This paper will cover exposure testing performed on various high-durability chemistries to evaluate gloss retention and color changes.

• 3:30–4:00 p.m., "A Study of the Effect of Film Thickness and Blast Profile on Accelerated Under Film Corrosion Creep," by Carl Reed, International Paint, LLC

The presenter will discuss a study that compared the effect of corrosion creep on a coatings film applied at various thicknesses over a standard abrasive blasted steel surface and a coatings film applied at constant thickness over an abrasive blasted steel surface with various maximum peak heights.

• 4:00–4:30 p.m., "Adhesion Tests and Failure Modes Study on Structural Steel Coatings," by Dr. John J. Myers, Missouri University of Science and Technology

The presentation will focus on adhesion test ASTM D 4541 on three categories of structural steel coating systems in the laboratory of Missouri University of Science and Technology.

• 4:30–5:00 p.m., "Laboratory Evaluation of Metalized Coatings," by David Tordonato, Ph.D., M.E., and Allen Skaja, Ph.D., U.S. Bureau of Reclamation

This presentation will discuss a study by the Bureau of Reclamation's Materials Engineering and Research Laboratory to evaluate the feasibility of using metalized/thermal spray coatings on equipment.

Exhibitors to Bring Their Finest to SSPC 2013

From *JPCL*, December 2012 | Free Product Information

Table of Contents

President's Welcome

Special Events, Awards Planned for Attendees

Attendees Can Hone Their Skills in San Antonio

SSPC 2013 Offers Well-Rounded Workshops

Technical Program Covers Protective, Marine, and Commercial Coatings

SSPC Committees Plan to Meet in San Antonio

Exhibitors to Bring Their Finest to SSPC 2013

Exhibitors at a Glance

SSPC 2013 Daily Schedule

Conference Registration Form

River barge with holiday lights
Courtesy of Darran Abate/SACVB

More than 120 companies have signed up to exhibit at SSPC 2013 featuring GreenCOAT in San Antonio, TX. Below you will find a full list of exhibitor descriptions and booth numbers known to *JPCL* at press time.

For more information on exhibiting, contact Kate Jurik, jurik@sspc.org.

Exhibit Hours

Tuesday, Jan. 15
5:00 p.m.:
Exhibit Hall Ribbon Cutting
5:00–8:00 p.m.:
Exhibit Hall Opening Reception

Wednesday, Jan. 16
11:00 a.m.–4:00 p.m.:
Exhibit Hall Open
11:30 a.m.–1:00 p.m.:
Lunch in the Exhibit Hall

Thursday, Jan. 17
10:00 a.m.–3:00 p.m.:
Exhibit Hall Open
11:30 a.m.–1:00 p.m.:
Lunch in the Exhibit Hall
1:30–3:00 p.m.:
Exhibit Hall Closing Reception

- **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, ND; phone: 701-348-3610; abrasivesinc.com. Booth 546. **See our ad, p. 74**.
- **Advanced Recycling Systems, Inc.** sells, rents, supplies, and services abrasive blasting, vacuuming, and dust collection equipment. Lowellville, OH; phone: 830-536-8210; arsrecycling.com. Booth 349. **See our ad, p. 71**.
- **Aggreko LLC** is a leader in rental power, temperature control, and 100% oil-free compressed air systems, providing 24/7 service support for over 50 locations nationwide. Richmond VA; phone: 804-233-7841; aggreko.com. Booth 108.
- **AIR Systems International** has manufactured confined space ventilation kits, breathing air equipment, portable filtration systems, remote area lighting, and environmental products for over 27 years. Chesapeake, VA; phone: 757-424-3967; airsystems.com. Booth 517. **See our ad, p. 107**.
- **ARID-DRY** mobile desiccant dehumidifiers, manufactured by Controlled Dehumidification IMS, are used for temporary humidity control and constructive drying. Features include special filtration, cooling, and heating. The units are available in 600–25,000 CFM supply volumes. Brighton, MI; phone: 810-229-7900; cdims.com. Booth 319. **See our ad, p. 44**.
- **Armakleen Company** manufactures ARMEX® from ARM & HAMMER®, a baking soda-based abrasive used for cleaning and preparing a variety of surfaces from steel to aluminum, masonry, wood, and glass. Princeton, NJ; phone: 609-497-7220; armex.com. Booth 631.
- **Atlantic Design Inc.** is an engineering and manufacturing firm that rents and sells new and used equipment and supplies for abrasive blasting. It also upgrades, retrofits, and troubleshoots existing equipment. Abingdon, MD; phone: 410-631-1870; calladi.com. Booth 649. **See our ad, p. 85**.

Piñatas
Courtesy of Ann Purcell/SACVB

- **Barton International** has produced the high-quality Mil-Spec and CARB-approved garnet blasting abrasives for 130 years. Glens Falls, NY; phone 800-741-7756; barton.com. Booth 537. **See our ad, p. 87**.
- **Binks and DeVilbiss** offers fluid-handling and spray-finishing equipment solutions for protective coatings applications, including spray guns, pumps, 2k, accessories, hoses, clean air coalescers, filters, and pressure tanks. Glendale Heights, IL; phone: 630-237-5169; binks.com. Booth 418.
- **BlastPro Manufacturing** manufactures a complete line of shotblasting, scraping, and cutting surface preparation equipment compatible with Blastrac™ equipment, and breakdown equipment for cleaning steel storage tank floors. Oklahoma City, OK; phone: 405-491-6464; blastpromfg.com. Booth 125.
- **Bullard Co.** is a leading manufacturer of personal protective equipment marketed worldwide. Products include supplied air and powered air respirators, air quality equipment, thermal imagers, fire helmets, and hard hats. Cynthiana, KY; phone: 859-234-6611; bullard.com. Booth 706. **See our ad, p. 97**.
- **Canfield & Joseph, Inc.** Tulsa, OK; phone: 918-663-8380; canfieldjoseph.com. Booth 142.
- **Carboline Co.** offers a comprehensive line of high performance coatings, linings, and fireproofing products that are both applicator-friendly and owner-preferred for steel and concrete protection. St. Louis, MO; phone: 314-644-1000; carboline.com. Booth 301. **See our ad, inside front cover**.
- **CavCom Corp.** is an audio technology company that designs products that prevent hearing loss and improve two-way radio communication in high noise and respirator environments. Walker, MN; phone: 866-547-4988; cavcominc.com. Booth 545.
- **CESCO/Aqua Miser** is a major supplier of abrasive blasting equipment, paint spray equipment, and safety equipment and manufactures the Ultra High Pressure Water Blaster “Aqua Miser.” North Charleston, SC; phone: 843-760-3000; blastandpaint.com. Booth 206.
- **Chlor*Rid International Inc.** is a world leader in soluble salt information, CHLOR*TEST field test kits, soluble salt removal products, the HOLD*BLAST surface passivator, and education for surface preparation. Chandler, AZ; phone: 480-821-0039; chlor-rid.com. Booth 321. **See our ad, p. 93**.
- **Cleaner Blast Solutions** manufactures wet abrasive blasting machines. Wakefield, MA; phone: 978-857-0473; cleanerblast.com. Booth 200.
- **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; phone: 636-239-0300; clemcoindustries.com. Booth 201. **See our ad, p. 101**.
- ***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, CA; phone: 858-768-0828; coatingspromag.com. Booth 639.
- **CSI Services, Inc.** is an SSPC-QP 5-certified coating inspection firm that provides third-party services throughout the coatings industry, including water and wastewater, petro-chemical, power, and military. Santa Clarita, CA; phone: 877-274-2422;

csiservices.biz. Booth 127.

- **Custom Abrasives, LLC** Houma, LA; phone: 985-879-2827; customabrasivesllc.com. Booth 602.
- **Cytec Industries** is a global specialty chemicals and materials company focused on developing, manufacturing and selling value-added products, which serve a diverse range of end markets including aerospace composites, structural adhesives, automotive and industrial coatings, electronics, inks, mining and plastics. Marietta, GA; phone: 973-357-3100; cytec.com. Booth 216. **See our ad, p. 70**.
- **Dampney Co. Inc.** designs, develops, manufactures, and distributes engineered coating systems for specialized applications. It services the refining, petrochemical, pipeline, power, offshore, OEM, and pulp & paper industries worldwide. Everett, MA; phone: 617-389-2805; dampney.com. Booth 438.
- **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, NY; phone: 315-393-4450; defelsko.com. Booth 401. **See our ads, pgs. 33, 35, and 57**.
- **Dehumidification Technologies, Inc. (DH Tech)** provides temporary, mobile climate control equipment for dehumidification, heating, and cooling in the U.S. and Australia with a focus on desiccant dehumidification. Houston, TX; phone: 713-939-1166; rentdh.com. Booth 224. **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, including hand or spray-applied Protal protective pipeline coatings. Houston, TX; phone: 281-821-3355; densona.com. Booth 410. **See our ad, p. 99**.
- **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, CA; phone: 800-337-2648; descomfg.com. Booth 411.
- **Detroit Tarp Inc.** is a leading manufacturer of tarps, covers, and custom enclosures for 49 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, MI; phone: 734-955-8200; detroit-tarp.com. Booth 338. **See our ad, p. 17**.

San Antonio hill country
Courtesy of Dennis Cox/SACVB

- **Diamond Vogel/Pinnacle Protective Coatings** has manufactured coatings aimed at protecting substrates exposed to severe, punishing environments, including the Pinnacle Protective Coatings line, since 1926. Orange City, IA; phone: 712-237-4993; diamondvogel.com. Booth 443.
- **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, NC; phone: 800-633-5206; doosanportablepower.com. Booth 607. **See our ad, p. 48**.

- **DRYCO** provides industrial climate control for the blasting and coating industry, specializing in desiccant and ArcticDRY mechanical dehumidifiers, cooling, heating, temporary power, and the DTAC remote monitoring system. Downers Grove, IL; phone: 866-379-2600; drycogroup.com. Booth 514. **See our ad, p. 82**.
- **Dumond Chemicals**, Malvern, PA; phone: 800-245-1191; dumondchemicals.com. Booth 707.
- **Dustless Blasting by MMLJ, Inc. (Sanstorm)** has manufactured abrasive blast equipment for over 70 years, including equipment with the no-clog pot. Houston, TX; phone: 713-869-2227; dustlessblasting.com. Booth 711. **See our ad, p. 67**.
- **DUSTNET by EMI International** is a liquid dust suppressant that safely and effectively removes dust when used with all abrasives and other industrial minerals in applications including blasting, cement, and agriculture. Pensacola, FL; phone: 850-380-6214; dust-net.com. Booth 311. **See our ad, p. 86**.
- **Eagle Industries** provides containment and supplies for the industrial painting industry including tarps, shrink wrap, scaffold sheeting, mesh screens, ventilation equipment, surface prep tools, dust collectors, and industrial vacuums. New Orleans, LA; phone: 504-733-3510; eagleind.com. Booth 306. **See our ad, p. 61**.
- **EcoQuip® Inc.** is a manufacturing company that designs and builds eco-friendly, wet abrasive blasting equipment that suppresses 95% dust, eliminates water runoff, and minimizes media consumption. Chesapeake, VA; phone 877-326-7847; ecoquip.com. Booth 708.
- **Elcometer** will showcase and demonstrate its entire line of inspection equipment and software for protective coatings and NDT inspection, such as corrosion gages, flaw detectors, adhesion testers, coating thickness gages, surface profile gages, and climate/humidity gages. Rochester Hills, MI; phone: 800-521-0635; elcometer.com; elcometerndt.com. Booth 217. **See our ad, p. 3**.
- **ELINERS** distributes polyurea and industrial spray elastomers, manufactured by The Dow® Chemical Company's Formulated Systems Group, for use in industrial applications. The company focuses on the specification and training for the proper use and application with strong technical support. San Antonio, TX; phone: 210-848-9144; eliners.com. Booth 725.
- **EnTech Industries, LLC** has been manufacturing high-performance, quality dust collectors for 19 years. It has machines ranging from 2,000–60,000 cfm. East Grand Forks, MN; phone: 218-773-6602; entechindustries.com. Booth 148. **See our ad, p. 107**.
- **Evonik Degussa Corporation** develops specialty chemicals. It will present ways to formulate eco-friendly coatings with Acematt® Matting Agents, Aerosil® Fumed Silica, Aeroxide® Fumed Metal Oxides, and Aerodisp® Fumed Silica Dispersions. Parsippany, NJ; phone: 973-929-8000; evonik.com. Booth 444.
- **Fischer Technology Inc.** offers hand-held coating thickness gages for precise measurement of various coatings on ferrous or nonferrous substrates. Specific settings must meet the requirements of SSPC-PA 2, IMO PSPC, and others. Windsor, CT; phone: 860-683-0781; fischer-technology.com. Booth 611. **See our ad, p. 45**.
- **FS Solutions Group** has nearly 100 years of collective experience in industrial vacuum loading, sewer and catch basin cleaning, vacuum excavation, and industrial high-pressure waterblasting. Toledo, OH; phone: 888-415-4368; fssolutionsgroup.com. Booth 100. **See our ad, p. 27**.
- **Fujian Duoleng Steel Group Co., Ltd.** is a leading steel abrasive producer in China that exports products to 45 countries worldwide. The bearing steel grit products are widely used in China CNPC pipeline coating and around 35 Chinese shipyards. Xiamen, Fujiang, China; phone: 86-592-8268535; duoleng.com. Booth 543.
- **Geoblaster Equipment** manufactures and distributes wet blast equipment. Dunnville, ON, Canada; phone: 905-774-1410; gogeoblast.com. Booth 107.
- **GMA Garnet (USA) Corp.** is a leading supplier of garnet abrasives for the surface preparation industry. Material is available through its global distribution network and warehouses. Houston, TX; phone: 832-243-9300; garnetsales.com. Booth 625. **See our ad, p. 39**.
- **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, MN; phone:

612-623-6000; graco.com. Booth 118. **See our ad, p. 75**.

- **Granite Mountain Quarries** produces quality “silica-free” nepheline syenite blasting abrasives, including the Razor Blast product. Three grades are available in both bulk and bags to meet your blasting needs. Sweet Home, AR; phone: 501-490-1535; gmqrock.com. Booth 124.
- **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, OR; phone: 541-874-3111; greendiamondsand.com. Booth 106.
- **Greenman-Pedersen, Inc.**, an engineering and construction services firm, specializes in development, design, and construction of infrastructure and building systems. Affiliate companies include GPI Southeast, Instrument
- Sales, Underwater Engineering Services, and CCC&L. Tampa, FL; phone: 813-632-7676; gpinet.com. Booth 421.
- **Hanes Supply, Inc.** manufactures chain, nylon, slingmax, and wire rope slings, as well as provides quality industrial, rigging, and safety products. Buffalo, NY; phone: 716-826-2636; hanessupply.com. Booth 417.
- **Harsco Minerals** has been recycling byproducts and producing the Original Black Beauty® abrasives for nearly 80 years. Harsco’s high-quality, chemically inert, low free silica, and low dusting abrasives are used in a range of applications. Mechanicsburg, PA; phone: 888-733-3646; blackbeautyabrasives.com. Booth 317. **See our ad, p. 25**.
- **Hempel Coatings** has been a leading coatings supplier for the decorative, protective, marine, container, and yacht markets for over 90 years. Conroe, TX; phone: 936-523-6000; hempel.us. Booth 137. **See our ad, p. 55**.
- **HippWrap Containment, Inc.** manufactures HippWrap containment systems for shrink-wrap containment, enclosures, and protective coatings. The company offers creative solutions to containment problems. San Diego, CA; phone: 800-362-4477; hippwrap.com. Booth 415. **See our ad, p. 49**.
- **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, TX; phone: 713-266-9339; holdtight.com. Booth 600. **See our ad, p. 73**.
- **HRV Conformance Verification Associates, Inc.** provides global, QA inspection services, including steel fabrication, pre-cast and prestressed concrete fabrication, coatings, and NDT inspection. It serves the highway and rail bridge construction, water and wastewater, and power industries, and commercial buildings and sports/entertainment facilities. Pittsburgh, PA; phone: 412-788-2522; hrvinc.com. Booth 636.
- **IBIX North American Headquarters, Surface Technologies LLC** is the exclusive North American manufacturer of the low-pressure, eco-friendly IBIX Cleaning systems, used in various industries. The unique lightweight aluminum body allows for maximum portability. Seminole, FL; phone: 727-322-4611; ibixusa.com. Booth 620.
- **Indian Valley Industries** manufactures containment tarps for lead blast media, debris, dust, overspray, and pollution control on waterways, bridges, and tanks for any industrial coatings and sandblasting operations. Johnson City, NY; phone: 607-729-5111; iviindustries.com. Booth 519. **See our ad, p. 11**.
- **Industrial Painting Limited, Inc.** is an industrial maintenance contracting company with 27 years of experience, including tank linings, shutdowns, painting, and vacuum services. Brighton, TN; phone: 901-837-7020. Booth 633.
- **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, WI; phone: 920-261-1136; industrialvacuum.com. Booth 548. **See our ad, p. 62**.
- **International Marine & Industrial Applicators, LLC (IMIA)** has extensive surface preparation and painting experience in the commercial shipbuilding industry. Spanish Fort, AL; phone: 251-626-3625; imiallc.com. Booth 446.
- **International Paint LLC** is a global coatings supplier committed to providing the highest level of corrosion protection with trusted brands like Devoe Coatings, Chartek, Enviroline, and Ceilcote. Houston, TX; phone: 800-589-1267; international-pc.com. Booth 619. **See our insert between pp. 72 & 73.**
- **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, OH; phone: 330-746-6100; jadcousa.com. Booth 518. **See our ad, p. 46**.

- **Kennametal, Inc.** manufactures high-production abrasive blast nozzles. It offers a wide selection of conventional and specialty blast nozzle designs in a variety of wear-resistant materials. Traverse City, MI; phone: 231-946-2100; kennametal.com. Booth 714.
- **KTA-Tator, Inc. (KTA)** is a consulting engineering firm founded in 1949. KTA provides coatings consulting, construction and steel fabrication inspection services, laboratory testing, and coating failure analysis and distributes inspection and monitoring equipment. Pittsburgh, PA; phone: 800-245-6379; kta.com. Booth 307. **See our ad, p. 79**.
- **LVH Industries Inc.** uses state-of-the-art machinery to refine recycled post-consumer container glass, which is typically destined for landfill, into glass abrasive materials, manufactured for use in various industries. McAdoo, PA; phone: 570-366-0950; lvhindustriesinc.com. Booth 629. **See our ad, p. 66**.
- **Marco** is a single-source provider of products and services to the surface preparation industry, including abrasives, air-blasting equipment, engineered systems, painting equipment, rental and safety equipment, and service and repair. Davenport, IA; phone: 800-252-7848; marco.us. Booth 507.
- **Mascoat** engineers and manufactures thermal insulating coatings that protect personnel, prevent CUI, retain energy, and can insulate up to 400 F. Rapid, spray application uses fewer man hours than conventional insulation. Houston, TX; phone: 713-465-0304; mascoat.com. Booth 337.
- **Max Access, Inc.** rents, sells, and services hoists, modular staging, top rigging, air tuggers, and frame scaffolding, and equipment for confined space entry and fall protection. Houston, TX; phone: 713-640-1005; max-access.com. Booth 642.
- **Midwest Rake Co. LLC** is a longstanding toolmaker and supplier of tools to the domestic and international protective and marine coatings and decorative concrete markets. Warsaw, IN; phone: 800-815-7235; midwestrake.com. Booth 343.
- **Mohawk Garnet, Inc.** produces garnet abrasives for all surface preparation and water-jet cutting needs. Wahnapitae, ON; phone: 705-694-5783; mohawkgarnet.com. Booth 207.
- **Moisture Control Co.** rents and sells portable air condition and dehumidification equipment. Baton Rouge, LA; phone: 225-293-6226; mcc-dh.com. Booth 535.
- **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, TX; phone: 469-995-2227; monarflexusa.com. Booth 615.
- **Montipower, Inc.** will showcase the MBX Bristle Blaster, a power tool that removes corrosion, scale, and coatings and imparts a 3-mil profile. Manassas, VA; phone: 703-396-8777; mbxit.com. Booth 506. **See our ad, p. 32**.
- **NACE International The Corrosion Society**, focuses on corrosion control and provides standards, training, conferences, and publications that address corrosion issues. Houston, TX; phone: 281-228-6200; nace.org. Booth 637. **See our ad, inside back cover**.
- **National Equipment Corp.** will display its Neco Blast Couplings in addition to its complete product line. Brenham; TX; phone: 979-830-8030; hosecoupling.com. Booth 618.
- **NexTec, Inc./PreTox Systems** 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; IA; phone: 563-589-1178; pretox.com. Booth 616. **See our ad, p. 56**.
- **Novatek Corp.** supplies surface preparation equipment and portable air filtration systems for hazardous and non-hazardous environments. Its products include dust-free needle scalers, shrouded peening tools, hand grinders, and air-powered scrapers. Exton, PA; phone: 610-363-7800; novatekco.com. Booth 339. **See our ad, p. 84**.
- **Novetas Solutions/New Age Blast Media** offers 100% post-consumer recycled crushed glass media that contains no heavy metals or toxins. Philadelphia, PA; phone: 215-551-3070; newageblastmedia.com. Booth 220. **See our ad, p. 108**.
- **Olimag Sand** is a Canadian producer of non-toxic abrasive for sand blasting. Its synthetic olivine JETMAG is produced in a rotary kiln at 2,300 F. Thetford Mines, QC; phone: 418-338-3562; olimag.com. Booth 521.

- **OPTA Minerals, Inc.** has provided high-quality, non-silica abrasives and services to the abrasive blast cleaning industry for more than 130 years. It has 15 locations across North America. Waterdown, ON; phone: 888-689-6661; optaminerals.com. Booth 334. **See our ad, p. 98**.
- **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; phone: 410-564-5860; lmcionline.org. Booth 336.

TPC Golf Course at JW Marriot San Antonio Resort
Courtesy of TPC/SACVB

- **Park Derochie** has over 50 years of industrial experience and offers turnkey shop and field services for tank exteriors and linings, secondary containment, and more. It also specializes in fireproofing, mechanical insulation, and scaffolding. Edmonton, AB; phone: 780-478-4688; parkderochie.com. Booth 419.
- **Pinovo AS** develops vacuum blast technology for surface preparation. It offers the onshore and offshore energy industries motorized tools for blasting pipes from 2–8 in. Bergen, Norway; phone: 47-56181200; pinovo.com. Booth 638.
- **Polygon** provides dehumidification, heating, and cooling services and equipment for coating applications. North Andover, MA; phone: 800-422-6379; polygongroup.us. Booth 501. **See our ad, p. 102**.
- **Polyguard Products** offers innovative corrosion coatings, such as pipeline coating systems, reactive gels for CUI, and abrasion-resistant outer wrap for bored or drilled applications. Ennis, TX; phone: 214-515-5000; polyguardproducts.com. Booth 138. **See our ad, p. 76**.
- **PPG Protective & Marine Coatings** develops, manufactures, and supplies coatings that anticipate the demanding challenges of the global protective and marine coatings industries. Pittsburgh, PA; phone: 412-434-3275; ppg.com. Booth 601. **See our ad, p. 5.**
- **Praxair Surface Technologies** offers high-performance coatings and technologies to the aviation, energy, and other industries. Its technologies help customers use less energy, extend component life, minimize down-time, and reduce operating costs. Indianapolis, IN; phone: 317-240-2500; praxairsurfacetechnologies.com. Booth 237.
- **Pro-Tect Plastic & Supply, Inc.** provides equipment, training, and support and supplies shrink wrap and flame-retardant and non-flame industrial-strength, heat-shrink films for environmental containment and project weatherization. Jacksonville, OR; phone: 541-774-5506; shrinkwrapcontainments.com. Booth 342. **See our ad, p. 77**.
- **PTQ Safety LLC** manufactures painters' safety goggles that feature a quick change, multi-lens benefit. The high-impact, ventilated, anti-fog lenses provide safety from debris as well potential obstructions such as fog. Houston, TX; phone: 832-582-8716; ptqsafety.com. Booth 226. **See our ad, p. 57**.
- **Rhino Linings® Corp.** makes coatings and linings formulated to provide performance and protection against abrasion, corrosion, impact, slipping, and vibrations; reduce containment maintenance costs, and maximize equipment return on investment. San Diego, CA; phone: 858-450-0441; rhinolinings.com. Booth 112. **See our ad, p. 40**.

- **Ring Power 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 products throughout the U.S. St. Augustine, FL; phone: 904-494-1274; ringpower.com. Booth 449.
- **Royce International LLC** is a manufacturer and supplier of epoxy resins, curing agents, and reactive diluents. The company originally was formed in New Jersey in 1929. Sarasota, FL; phone: 516-367-6298; royceintl.com. Booth 705.
- **SAFE Systems** provides manufacturing, engineering, sales, parts, technical support, and service for its U.S.-built portable equipment and fixed blast facilities. Standard or custom designed equipment for blasting, recovery, classification, and dust collection is available. Kent, WA; phone: 425-251-8662; safesys.com. Booth 416. **See our ad, p. 106**.
- **Safety Lamp of Houston**, a North American distributor for Wolf Safety Lamp Co., specializes in portable pneumatic, LED, and fluorescent lighting solutions for all wet and hazardous areas. Houston, TX; phone: 281-964-1019; safetylampofhouston.com. Booth 510. **See our ad, p. 65**.
- **SAFWAY Services, LLC** is a manufacturer of engineered suspended access systems for use with bridges, buildings, offshore platforms, and special structures. It sells and rents to contractors. Scotia, NY; phone: 518-381-6000; safway.com. Booth 235.
- **Sand Express** produces high quality processed sands and aggregates, including raw and industrial sands and abrasives. It services industrial and commercial customers throughout the Gulf Coast region and Central U.S. Columbus, TX; phone: 800-460-8210; quikrete.com. Booth 634.
- **Sauereisen, Inc.** manufactures specialty cements and corrosion-resistant materials of construction, including sealants, corrosion barriers, and substrate repair materials for the protection and restoration of wastewater infrastructure. Pittsburgh, PA; phone: 412-963-0303; sauereisen.com. Booth 436.
- **Schmidt Engineered Abrasive Systems** provides Schmidt® abrasive blast equipment and other engineered air blast systems. Fresno, TX; phone: 800-231-2085; axxiommfg.com. Booth 525.
- **The Sherwin-Williams Co.** is a worldwide protective and marine coatings company with a complete line of products; a NACE- and SSPC-trained workforce skilled in corrosion control; and a dedicated distribution network of 4,000 company-owned locations. Cleveland, OH; phone: 800-524-5979; sherwin-williams.com/protective. Booth 225. **See our ad, p. 112**.
- **Spider**, founded in 1947, manufactures, sells, rents, and services powered suspended access platforms, material hoists, and safety equipment in 25 locations in the Americas. It provides turnkey access solutions and Competent Person Training. Seattle, WA; phone: 877-774-3370; spiderstaging.com. Booth 114. **See our ad, p. 109**.
- **Sponge-Jet Inc.** bonds conventional abrasives with polyurethane sponge to create dry, recyclable, low-dust, and low-rebound sponge media that accelerates blasting and painting. The company also makes composite-abrasive blasting and recovery systems. Newington, NH; phone: 603-610-7950; spongejet.com. Booth 406.
- **Sulzer Mixpac USA, Inc.** is a global manufacturer of innovative packaging, dispensing, mixing/spray systems for 2K adhesives, sealants, and coatings, and industry-recognized cartridges, mixers, dispense guns, and spray tips. Salem, NH; phone: 603-893-2727; sulzer.com. Booth 724.
- **Sunbelt Rentals**, one of the largest equipment rental companies in the U.S., serves the commercial, residential, municipal, and specialized service industries as well as weekend do-it-yourselfers. Fort Mill, SC; phone: 803-578-5076; sunbeltrentals.com. Booth 710.
- **Tank Industry Consultants** offers expert staffing, consulting, and engineering services for new and existing water storage tanks. Indianapolis, IN; phone: 317-271-3100; tankindustry.com. Booth 239.
- **Tarps Manufacturing, Inc.** produces U.S.-constructed, custom containment tarps, building wraps, and ground tarps in nylon and poly mesh. Other options include coated fabrics, FR, and multi-layered tarps for sound reduction and printing. Meredosia, IL; phone: 217-584-1900; tarpsmfg.com. Booth 136. **See our ad, p. 115**.
- **The TDJ Group** manufactures Blastox®, an abrasive additive to stabilize and abate lead-based paint. Cary, IL; phone: 847-639-1113; blastox.com. Booth 542.
- **Technology Publishing/PaintSquare** is the media leader for the protective and marine coatings industry as well as the architectural coatings and related building

materials industry. TPC publishes *The Journal of Protective Coatings & Linings (JPCL), PaintSquare News e-newsletter, Durability + Design* magazine and e-newsletter, and Paint BidTracker, the only project lead service dedicated to coatings work. Pittsburgh, PA; phone: 412-431-8300; paintsquare.com; durabilityanddesign.com. Booth 437.

- **Temp-Coat** Brand Products has been manufacturing Temp-Coat 101, a liquid ceramic insulation, for over 20 years. La Place, LA; phone: 800-950-9958; tempcoat.com. Booth 544.
- **TFT-Pneumatic, LLC** is the exclusive U.S. distributor of sparkless grinders and cold cutting tools that can be used in explosive and hazardous areas. The company's grinders create a 2.5 mil anchor profile, Near-White metal. Houston, TX; phone: 713-686-9400; tft-pneumatic.com. Booth 414.
- **Tnemec Co., Inc.** makes high-performance coatings for industrial and architectural applications on steel, concrete, masonry, and other substrates. Kansas City, MO; phone: 816-483-3400; tnemec.com. Booth 539.
- **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, MA: phone: 800-421-0246; tractel.com. Booth 315. **See our ad, p. 65**.
- **Trimaco, LLC** offers products for jobsite and surface protection and cleaning, including masking products, drop cloths, rags, and wipes; chemicals for cleaning and paint prep; protective wear; paint strainers; and paint sundries. Morrisville, NC; phone: 314-534-5005; trimaco.com. Booth 442.
- **TruQC** allows project managers in the industrial painting, construction, and quality/process control sectors to submit job-site documentation via the iPad. All forms are time, date, photo, GPS, and signature stamped. St. Louis, MO; phone: 314-681-2558; truqcapp.com. Booth 243.
- **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, IN; phone: 217-864-0909; usminerals.com. Booth 643. **See our ad, p. 83**.
- **Uni-Ram Corp.** uniram.com. Booth 547.
- **Van Air Systems** is a designer and manufacturer of equipment that dries and purifies compressed air used for applying and removing coating systems. Lake City, PA; phone: 814-774-2631; vanairsystems.com. Booth 214. **See our ad, p. 119**.
- **VersaFlex Inc.** formulates, manufactures, and supplies pure polyurea coatings, linings, and sealants for a wide variety of industrial, commercial, and maintenance environments. The company has offices in China, Europe, India, Malaysia, and the Middle East. Kansas City, Kansas; phone: 913-321-9000; versaflex.com. Booth 508. **See our ad, p. 103**.
- **VRSim**, makers of SimSpray™, creates virtual training systems designed to enhance skills training. Using technology from the gaming industry, VRSim produces user-friendly, fully immersive systems providing realistic learning environments. East Hartford, CT; phone: 860-893-0080; vrsim.net. Booth 346.
- **W Abrasives** is a global manufacturer of carbon steel shot and grit. Its line up includes high carbon steel shot and grit, stainless steel shot, and a line of premium products. Bedford, VA; phone: 800-207-4691; wabrasives.com. Booth 721.
- **The Warehouse Rentals & Supply (TWRS)** is the best source for quality abrasive blasting equipment, painting equipment, and related replacement parts. Greensburg, PA; phone: 800-621-2777; twrs.com. Booth 149. **See our ad, p. 105**.
- **Wasser High-Tech 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 WA; phone: 800-627-2698; wassercoatings.com. Booth 242. **See our ad, p. 53**.
- **Western Technology** manufactures explosion-proof and low-voltage lighting, including the Kick It Tough LED product line as well as a complete line of deadman controls.Bremerton, WA; phone: 360-917-0080; westerntechnologylights.com. Booth 407. **See our ad, p. 105**.
- **WIWA LP** manufactures airless paint spraying equipment, including standard airless pumps, plural-component equipment, and other industrial systems. Alger, OH; phone: 855-757-0141; wiwalp.com. Booth 701. **See our ad, p. 42**.
- **The Wooster Brush Co.** produces over 2,300 coating application and prep tools for numerous industrial applications. Product innovation and quality sets Wooster apart.

Wooster, OH; phone: 330-264-4440; wooster-brush.com. Booth 345.

- **Zebron Corporation** manufactures 100% solids polyurethane spray-applied coatings. It designs and assembles all necessary application equipment and also provides spray equipment maintenance. Newport Beach, CA; phone: 714-632-6690; zebron.com. Booth 516.

Join the Conversation:

Add your comment (Your comment will be displayed as posted by heidi bonine; PaintSquare reserves the right to remove or edit comments. Comments not consistent with our comment posting policy will be removed.)

The Buzz

From *JPCL*, December 2012 | Free Product Information

Anita Socci
JPCL

Although the presidential election is over, politics, specifically electoral votes, remained the hot topic and was the most popular poll question. Here's the breakdown as well as some of the comments to the question "Did you vote in [the last] presidential election?" Go to www.paintsquare.com or scan the QR code below with your smartphone to see the latest news, quizzes, and poll results.

> ***"Yes, I always vote." 94%***
>
> ***"I never vote. What's the point?" 5%***
>
> ***"I usually do, but didn't this time." 2%***

Arthur Bailly: "By the time I vote (West Coast) they have already announced a winner. We need to get rid of the electoral vote and go to a popular vote."

Karen Fischer "How do you think Republicans in NY feel? The electoral college negates their vote in all National Elections. Might as well not vote. If electoral votes were allowed to be split by each state based upon the percentages of the popular voting, then it would be far more representative. Perhaps not perfect, but better. Right now, it is "the majority takes all."

PSN TOP 10
(As of Dec. 6)

Bridge Painter's Body Recovered
Top 20 U.S. Painting Contractors Named
Painter Did Not Tie Off, Employer Says
Final Sentence Ends OH Painting Scandal
$2.6B 'Impossible' Megaproject to Begin
Deadly Overpass Collapse Sparks Riots
IN Blast Kills 2, Guts Neighborhood
Nuke Manager Faked Safety for Bonuses
Bridge Painter Loses Lifeline Appeal
'Human Error' Blamed in Club Explosion

Most Popular Quiz Results
(As of Dec. 6)

True or false: Metallic zinc has been used as a blasting abrasive to clean steel.

Michael Beitzel 19/19
Bryon Beck 19/19
Archie LeBourgeois 19/19
Robin Hasak 19/19
Shabbir Hussain Shah 19/19