

Hear Ye, Hear Ye!!!

Update on Standards Related to the *Polyurea* Technology

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Social Media.....

- Facebook 
- LinkedIn 
- Twitter 
- #polyurea #polyureaspray #really?????
- And so forth.....



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Specifications

Vs

Standards



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What are Specifications?

“Specifications are a load assumed with bravado, borne with groans, and shifted, when they can be shifted, universally without regret. The architect who is not a specialist in writing them, is apt to look on them as a quasi-magic formulae, which he [sic] does not fully understand nor really care to understand but repeats dutifully and wearily, as a ritual handed down to him by wiser men.”

From *Ready Written Specifications*, Leicester B. Holland and Harry Parker (1926)



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What are Specifications?

- Instructional **LEGAL document** on how to proceed with a coating / lining installation – **Work Results!**
- Typically prepared by an architect or engineer specializing in that type work
- Often prepared by the polyurea coating / lining system supplier
- Basically a cookbook / recipe for successful polyurea coating / lining installation!
- Project specific document
- May be prepared by the contractor!



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Specification Purpose?

- A specific / desired polyurea coating / lining project
- Assures quality / proper polyurea materials and workmanship – keeps all on “same page”
- Assure timely completion of work; avoid delays / disputes
- Insure accurate or reasonable costs for the work
- Inhibit costly change orders or claims, maximize profit
- Assures for all safety, environmental and legal requirements
- To assure that the polyurea coating / lining system is applied to the correct areas of the project
- It's **NOT Product Selection!!!!**



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What are Industry Specifications?

- Need to have proper communication
 - Computer “cut & paste” procedure - **careful**
- Have to be written correctly
 - **Shall** be read before undertaking project!
 - **Shall** be followed – rules / “law”
- **Use Industry Standards!**
 - Performance information related to project / use



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What are Industry Standards?

- Consensus documents from Industry Representation
 - Owners, suppliers, users, inspectors, etc
- Application Standards
- Performance Based Standards
 - Establish minimum performance criteria
 - Can be related to a specific industry / application
- They refer to ASTM, ISO, API, NACE, ICRI, ACI, ISO & others



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What are Industry Standards?

- Help us insure and support that the right technology, performance and process is being used for successful application work
- Not just about the “technology” or a product



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Pinholes!!!!

- Know issue at the time of application of spray polyurea (thermoset) materials
- What is acceptable???
- Any ***standard*** reference???
 - Novel idea.....
- Well glad you asked.....



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Pinholes!!!!

Classification	Number of Pinholes per Evaluation Spot
None	0 pinholes
Low	1 to 10 pinholes
Moderate	11 to 20 pinholes
High	> 20 pinholes

Evaluation Spot = 1 ft² (0.1 m²)



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Pinholes!!!!

Classification	Service Environment
None	Interior atmospheric coatings applied to areas such as medical, food, drug or pharmaceutical clean rooms, or areas frequently wet or washed down
	Immersion coatings
	Floor coatings
Moderate or less	Atmospheric coatings applied to interior surfaces in general areas
	Atmospheric coatings applied to exterior surfaces in general areas



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Applied Film Thickness - DFT

Did you know, there are 2 important standards related to application Dry Film Thickness??

- SSPC-PA 2, Coating Application Standard No. 2
 - Procedure for Determining Conformance to Dry Coating Thickness Requirements
- SSPC-PA 9, Paint Application Specification No. 9
 - Measurement of Dry Coating Thickness on Cementitious Substrates Using Ultrasonic Gages



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Applied Film Thickness - DFT

SSPC-PA 2

TABLE 1
COATING THICKNESS RESTRICTION LEVELS

Thickness	Gage Reading	Spot Measurement	Area Measurement
Level 1			
Minimum	Unrestricted	As specified	As specified
Maximum	Unrestricted	As specified	As specified
Level 2			
Minimum	Unrestricted	As specified	As specified
Maximum	Unrestricted	120% of maximum	As specified
Level 3			
Minimum	Unrestricted	80% of minimum	As specified
Maximum	Unrestricted	120% of maximum	As specified
Level 4			
Minimum	Unrestricted	80% of minimum	As specified
Maximum	Unrestricted	150% of maximum	As specified
Level 5			
Minimum	Unrestricted	80% of minimum	As specified
Maximum	Unrestricted	Unrestricted	Unrestricted

SSPC-PA 9

Table 1
Restriction Levels
Coating Thickness on Concrete

Thickness	Spot Reading	Area Reading
Level 1		
Minimum	As specified	As specified
Maximum	As specified	As specified
Level 2		
Minimum	As specified	As specified
Maximum	125% of maximum	As specified
Level 3		
Minimum	75% of minimum	As specified
Maximum	125% of maximum	As specified
Level 4		
Minimum	75% of minimum	As specified
Maximum	Unrestricted	Unrestricted



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Available Lighting ... Never Thought of That

- Lighting (SSPC Guide 12)
 - **Application:** 20 – 50 footcandles,
 - ~215 to 540 lux
 - **Inspection:** 50 – 200 footcandles,
 - 540 to 2150 lux



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Some Current Industry Standards - *Polyurea*

- SSPC: The Society for Protective Coatings
 - **Paint Specification No. 39** (SSPC-Paint 39)
 - Two-Component Aliphatic Polyurea Topcoat, Fast or Moderate Drying, Performance-Based
 - **Coating System SSPC-PS 28.01**
 - Two-Coat Zinc-Rich Polyurethane Primer / Aliphatic Polyurea Topcoat System, Performance-Based
 - **Coating Application Standard No. 14** (SSPC-PA 14)
 - Application of Thick Film Polyurea and Polyurethane Coatings to Concrete and Steel Using Plural Component Equipment
 - **Coating Standard No. 43** (SSPC-Paint 43)
 - Direct-To-Metal Aliphatic Polyurea Coating, Performance Based
 - **Coating Specification No. 44** (SSPC-Paint 44)
 - Liquid-Applied Organic Polymeric Coatings and Linings for Concrete Structures in Municipal Wastewater Facilities, Performance-Based
 - **Coating Standard No. 45** (SSPC-Paint 45)
 - Two-Component, Thick-Film Polyurea and Polyurea/Polyurethane Hybrid Coatings, Performance Based



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Current Industry Standards – Surface Prep???

- Well what about application / Surface Prep???



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Current Industry Standards – Surface Prep???

- **SSPC-SP 5 / NACE No. 1 / ISO 8501-1 Sa 3**
 - White Metal Blast Cleaning - 100% free visible contaminants
- **SSPC-SP 6 / NACE No. 3 / ISO 8501-1 Sa 2 ***
 - Commercial Blast Cleaning - free of visible contaminants; shadows and stains allowed on 33% of surface area
- **SSPC-SP 7 / NACE No. 4 / ISO 8501-1 Sa 1**
 - Brush-Off Blast Cleaning - removes loose mill scale, rust and paint
- **SSPC-SP 10 / NACE No. 2 / ISO 8501-1 Sa 2½**
 - Near-White Metal Blast Cleaning - free of visible contaminants; shadows and stains allowed on 5% of surface area
- **SSPC-SP 14 / NACE No. 8**
 - Industrial Blast Cleaning – tightly adhered mil scale, rust and coating allowed on 10% of surface area



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Current Industry Standards – Surface Prep???

- But Wait! What shall be done before that????
- **SSPC-SP 1**
 - Solvent Cleaning (“solvent”) - removes grease / oil
 - Performed before any power tool or abrasive blasting
 - Remember the universal solvent??



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Current Industry Standards – Surface Prep???

- **SSPC-SP 5 (WAB) / NACE WAB-1**
 - White Metal Wet Abrasive Blast Cleaning - 100% free visible contaminants
- **SSPC-SP 6 (WAB) / NACE WAB-3**
 - Commercial Wet Abrasive Blast Cleaning - free of visible contaminants; shadows and stains allowed on 33% of surface area
- **SSPC-SP 7 (WAB) / NACE WAB-4**
 - Brush-Off Wet Abrasive Blast Cleaning - removes loose mill scale, rust and paint
- **SSPC-SP 10 (WAB) / NACE WAB-2**
 - Near-White Metal Wet Abrasive Blast Cleaning - free of visible contaminants; shadows and stains allowed on 5% of surface area
- **SSPC-SP 14 (WAB) / NACE WAB-8**
 - Industrial Wet Abrasive Blast Cleaning – tightly adhered mill scale, rust and coating allowed on 10% of surface area



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Current Industry Standards – Surface Prep???

- **SSPC-SP WJ-1, WJ-2, WJ-3 & WJ-4**

- Replaces SSPC-SP 12 / NACE No. 5 / ISO 8501-4
- Surface Preparation and Cleaning of Metals by Waterjetting prior to Re-Coating
- Does NOT create a profile on metals (exposes existing)
- removes water soluble salts, rust, coatings, oil / grease
- 4 grades of cleanliness

HP WJ (High-Pressure Water Jetting)

10,000 - 30,000 psi (69 – 207 MPa) water

UHP WJ (Ultra High-Pressure Water Jetting)

> 30,000 psi (>207 MPa) water



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Current Industry Standards – Surface Prep???

- **SSPC-SP 2 / ISO 8501-1 St 2**
 - Hand Tool Cleaning - removes mill scale, rust, paint
- **SSPC-SP 3 / ISO 8501-1 St 3**
 - Power Tool Cleaning - removes mill scale, rust, paint
- **SSPC-SP 8**
 - Pickling – removes mill scale and rust
- **SSPC-SP 11**
 - Power Tool Cleaning to Bare Metal – roughened surface free of visible contaminants
- **SSPC-SP 15**
 - Commercial Grade Power Tool Cleaning



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Current Industry Standards – Surface Prep???

- **SSPC-SP 13 / NACE No. 6**
 - Surface Preparation of Concrete
- **SSPC-SP 16**
 - Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals



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Current Industry Standards

- **Canada CAN/ULC-S668-12**
 - “Standard for Liners Used for Secondary Containment of Aboveground Flammable and Combustible Liquid Tanks”



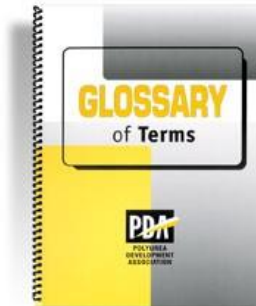
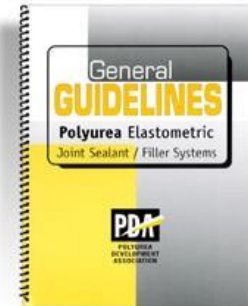
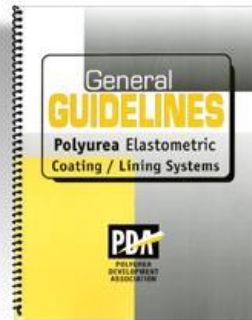
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PDA Products!

PDA: Polyurea Development Association

- General Guideline: Polyurea Elastomeric Coating / Lining Systems (December 2002)
- General Guideline: Polyurea Elastomeric Joint Sealant / Filler Systems (December 2002)
- General Standard: Polyurea / Geotextile Elastomeric Lining Systems (April 2006)



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Some Great News Here!!!!

General Standard: Polyurea / Geotextile Elastomeric Lining Systems

- Currently written in the CSI type format
- Good information contained, but requires updating



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Some Great News Here!!!!

General Standard: Polyurea / Geotextile Elastomeric Lining Systems

- **Joint Standard Development with PDA / SSPC!!!!!!**
- Review Team Contacts Identified:
 - Mr. Benjy Abbott – PDA
 - Dudley Primeaux – SSPC / PDA Liason (drafted original document)
 - SSPC Team
- Will review the current document, suggest format back to SSPC



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Some Great News Here!!!!

So the Million \$\$\$\$ Question ---- WHEN?????

- In process now
- SSPC Conference in Orlando – January 2019
 - Mr. Benjy Abbot – PDA
 - Dudley Primeaux – SSPC / PDA Liaison
 - SSPC Team
- Suggested SSPC C.1.9 Polyurea Committee (SSPC-PA 14 & SSPC-Paint 45)
 - Need balance of Industry Representation to meet Standards Development requirements



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Conclusion

- It's time to get back on track
- Have excellent talent and support here in this group
- We can all work together for a common cause....
- Please be patient.....
- And ***Please***, help / Volunteer!!!
- Remember the 3 C's: **Committed, Competent, Character**



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Thank You!

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