

Sustainability in Coatings

Drivers, Technologies, and Synergies

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Coatings, Adhesives, and Specialties



- § Industry Drivers for Coatings
- § Sustainable Technologies and Uses
- § Smart Synergies - Case Histories
- § Summary and Comment

§ Industry Drivers for Coatings

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§ Summary and Comment

Industry Drivers for Coatings

- **Ease of Use**

- Application ruggedness, fast curing, return to service time

- **Long Term Durability**

- Color retention, chalking, abrasion/chemical resistance, crack bridging

- **Odor and Safety**

- Solvents, hazardous additives, plasticizers, worker safety, disposal costs

- **Clarity and Gloss**

- Color 'pop', adjustable gloss levels, design enhancements, aesthetics

- **Sustainability Standards**

- VOC, indoor environmental quality, preferred content, certifications, durability....



Industry Drivers for Sustainability

- **VOC compliance**
Ultra low to zero VOC options
- **Environmentally preferred content**
Preferences and trends
- **Renewable materials**
Ex. Natural oil polyols
- **Re-useable materials**
Ex. Thermoplastic urethanes
- **Recycled content**
Ex. Used polymer glycolysis, fillers
- **Energy efficiency contributions**
Ex. White roof coatings, UV, spray PU foam
- **Environmental Footprint (LCA)**
Demonstrate sustainability, EPD
- **Environmental Performance**
New standards account for durability
- **Locally Manufactured**
Lowers carbon footprint
- **End of Life (downstreaming)**



Industry Drivers for Sustainability

**PREFERRED
CONTENT
DRIVER**



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Current trends in regulations governing the use of VOC and additive containing products:

§ CARB, SCAQMD, OTC, and EPA have all lowered VOC regulations for AIM coatings

§ California 2007 Phthalate Bill – bans all phthalates used in products that contact children





§ U.S. auto industry has an active program to phase out phthalates in the cockpit over the next five years

§ FDA re-evaluating stance on Bisphenol A in containers

Industry Drivers for Sustainability

LEGISLATION
DRIVER

PDA
EUROPE

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Governmental drivers are in place:

- § USDA BioPreferredSM
- § U.S. Farm Bill of 2008 – government preference for bio-based and recycled content products
- § FTC report in committee – “Guides for Use of Environmental Marketing Claims for Green Buildings”
- § EPA Energy Star Program
- § CA Title 24



Industry Drivers for Sustainability

CERTIFICATION
DRIVER



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Owners, Architects, and Engineers are demanding Sustainability:

§ U.S. Green Building Council LEED Program § CSI GreenFormat

§ ASTM Subcommittee D20.96

§ Green Seal GS-11

§ Industry Drivers for Coatings

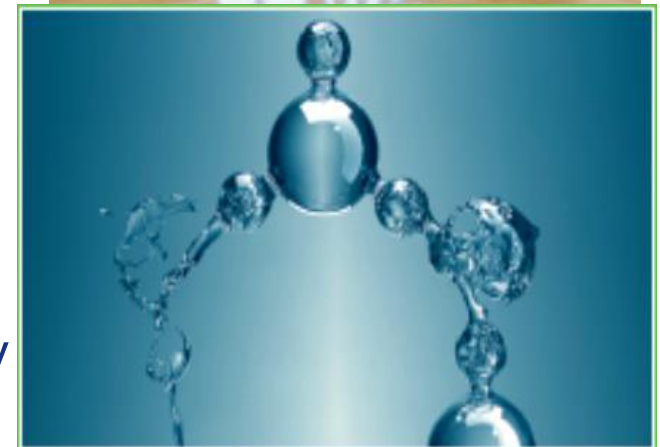
§ Sustainable Technologies and Uses

§ Smart Synergies - Case Histories

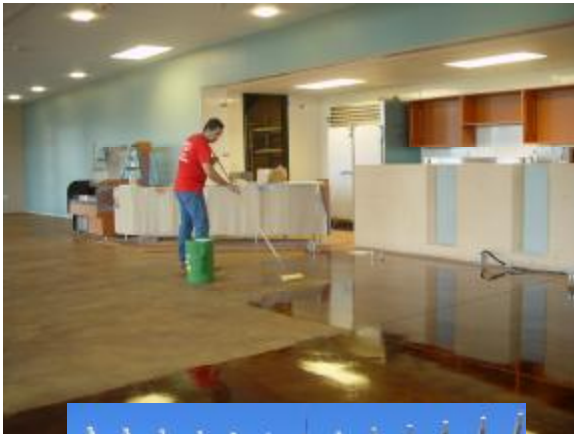
§ Summary and Comment

Sustainable Technologies

- § **Natural Oil Based Coatings:** Proven 100% solids technology creates a durable, impact resistant basecoat with high renewable content
- § **Waterborne Technologies:** Ultra-low VOC coatings with chemical and abrasion resistance comparable to solventborne
- § **Polyaspartic resins:** Formulate VOC-free coatings with fast cure times and excellent durability
- § **UV resins:** Water based or 100% solids highly durable coatings for fast return to service



Sustainable Product Uses



- § **Natural Oil Based Coatings:** Self leveling floor coatings used prior to application of polyurea or polyaspartic topcoats, resistant to high humidity during application
- § **Waterborne Technologies:** Industrial and commercial floor topcoats, graffiti resistance topcoat over aromatic polyurea
- § **Polyaspartic resins:** Fast return-to-service coatings and sealants for flooring and infrastructure where rapid cure and high build is a must
- § **UV resins:** All types of flooring topcoats where low odor and fast cure is needed

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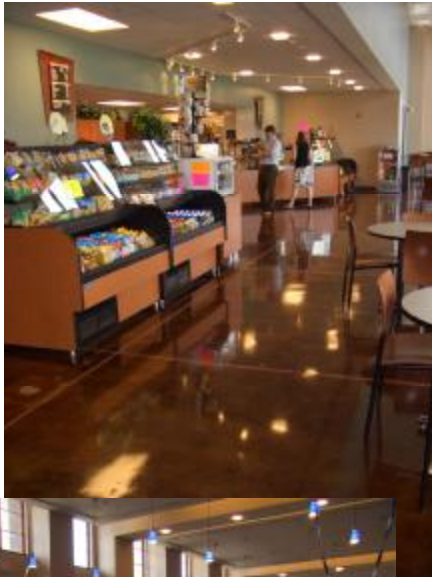
Graffiti Resistant Topcoats

Two Component Waterbased Coating over Aromatic Polyurea

- § Base coat of polyurea to waterproof, level, texture surface can be used
- § Topcoat of light stable, easy to clean topcoat extends the life of the polyurea and provides a cleanable surface
- § Synergy of polyurea and 2K waterborne topcoat provides an ultra-low VOC, green option for schools, DOTs, municipalities



Smart Synergies



Decorative Flooring Options

Augments the look of high end flooring

- Many decorative flooring options exist including acid stains, soy stains, decorative chips
- A polyaspartic type polyurea works as a protective topcoat to the expensive concrete enhancements
- For applications where a very matte finish is desired, a 2K waterborne topcoat can be applied to downgloss the polyaspartic
- Synergy of decorative stains with polyaspartic provides a long lasting, zero VOC finish. A 2K waterborne topcoat adds to the design possibilities while retaining desirable green attributes

Light Stable Topcoats over Polyurea

Polyaspartic Coating over Aromatic Polyurea

- § Tough basecoat of polyurea for waterproofing, crack bridging, and durability
- § Topcoat of light stable polyaspartic topcoat extends the life of the polyurea and provides a cleanable surface
- § Synergy of polyurea and polyaspartic topcoat provides a near zero VOC, green option for stadiums, plaza decks, parking structures



100% Solids Polyaspartic Gelcoat Refurbishment

Polyaspartic Replaces High Styrene Polyester Gelcoat



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- § **Sustainability drivers should be woven into your products**
- § **Novel technologies provide an extension of the markets for traditional polyureas**
- § **Smart Synergies exist where polyurea has provided a solution to a challenging project**
- § **Get familiar with new technologies and their uses**

Question and Answer



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