Polyureas, Hybrids, & Polyurethanes for Thick Film Barrier Protection Applications

2019 PDA Conference
October 17 – 18, 2019
Hilton Orange County/Costa Mesa
Some General Background…

- Founder & CEO – John Pantanella
- Manufacturing Facilities
  - St. Louis, MO…..(250K sq ft)
  - Los Angeles, CA.(50K sq ft)
- ~90 employees
- 12 degreed chemists
- 5 spray equipment experts

- Polyureas, Hybrids, & Polyurethanes
- Aromatic & Aliphatic
- MDI & TDI
- A-side Manufacturing
  - Pure MDI
- Spray Demo Facility
- ISO 9001:2015 Registered
Water Infrastructure Market (AWWA, EPA, ASCE reports)

- +1MM miles of buried drinking water pipe with majority installed 1900-1950 with an estimated service life of 75-100 years.
- 750K miles of gravity sewer lines (25% of lines are +40 years old)
- 12MM manholes
- 240K watermain breaks each year
- 6B gallons of treated drinking water lost each day to leaks
- EPA Wastewater infrastructure survey - $270B investment needed over 5 years including $51B for rehab/repair of existing sewer lines and $41B for new sewer lines.
Steel Water Transmission Lines (6-12 ft diameter)

Spiral-welded steel pipes for high pressure water mains
CHEMTHANE 2265 (30 mils dft)
Corrosion protection interior/exterior
AWWA Standard C-222-2018
100% Polyurethane for best resistance to water transmission through film
Zero VOC’s
Sewer Manhole Rehabilitation

PUA/PUR Spray materials include elastomeric, semi-structural, and structural products

Challenges for semi-structural & structural materials

High flexural and tensile modulus required
Exotherm/shrinkage/green strength
Reinforcing fillers (material handling, effects on equipment)
Other property requirements – compression strength, abrasion resistance, chemical resistance, creep analysis, water vapor transmission.
Water Line Rehabilitation

Both PUA and PUR materials
Low pressure and high pressure water lines
Varied meter/mix delivery systems
NSF 61 requirement
Various physical property requirements depending on size and purpose of water line
Filled systems
THANK YOU