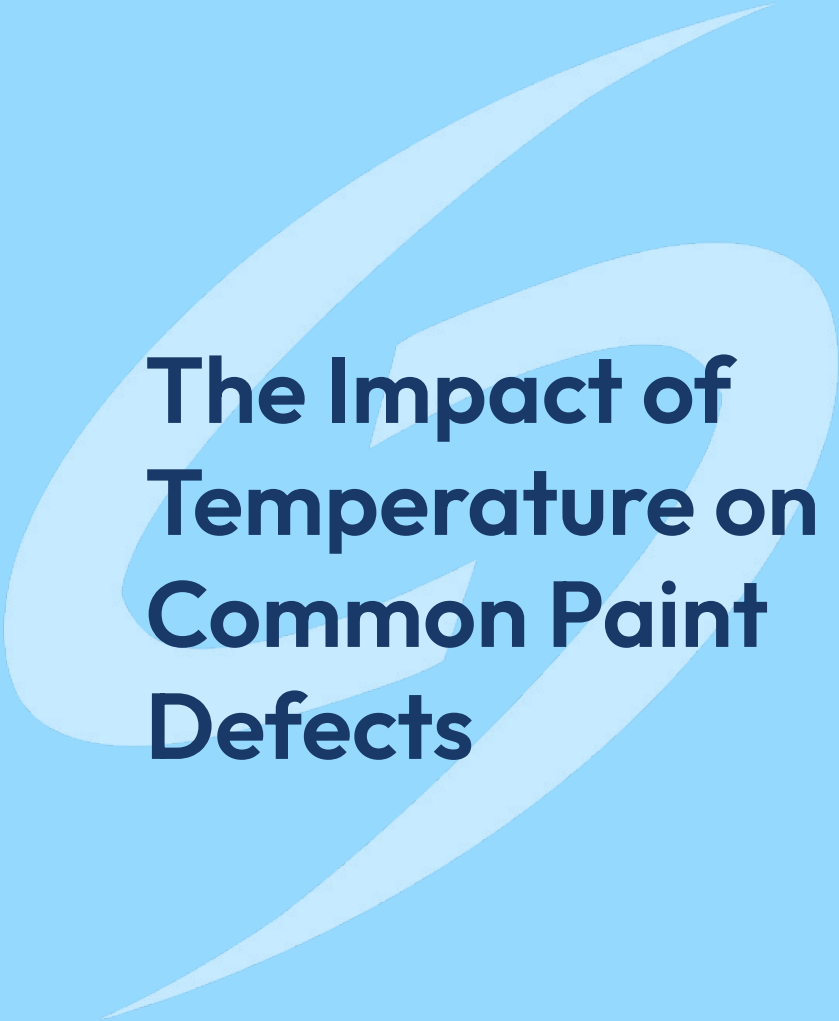




saint clair  
systems





# The Impact of Temperature on Common Paint Defects



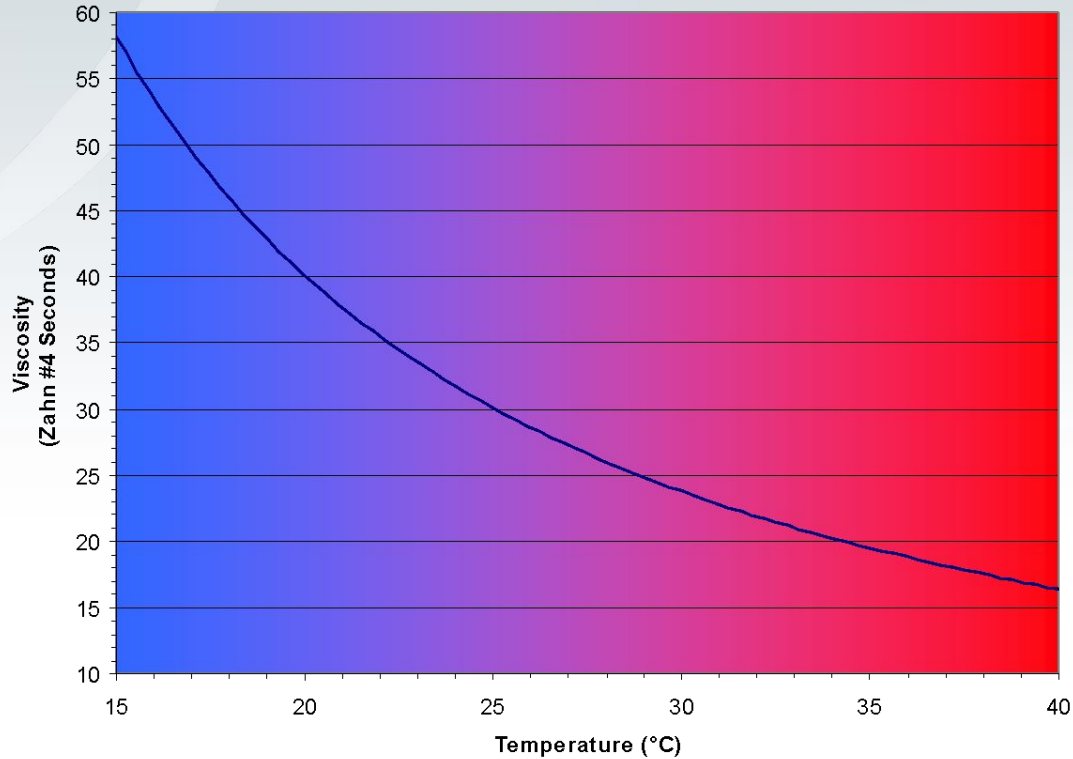
- Designers and manufacturers of advanced point-of-use temperature and viscosity control systems for industrial fluid dispensing processes since 1990
- Specializing in both recirculating and “dead-end” systems with more than 3500 active installations
- Low Viscosity (<1 CPS) to high viscosity (>1,000,000 CPS) applications standard at pressures from 0.4 BAR (5 PSI) - 400 BAR (6000 PSI)

# So who cares?

Those 3500+ temperature control installations involved some of the toughest applications in partnership with demanding customers like:

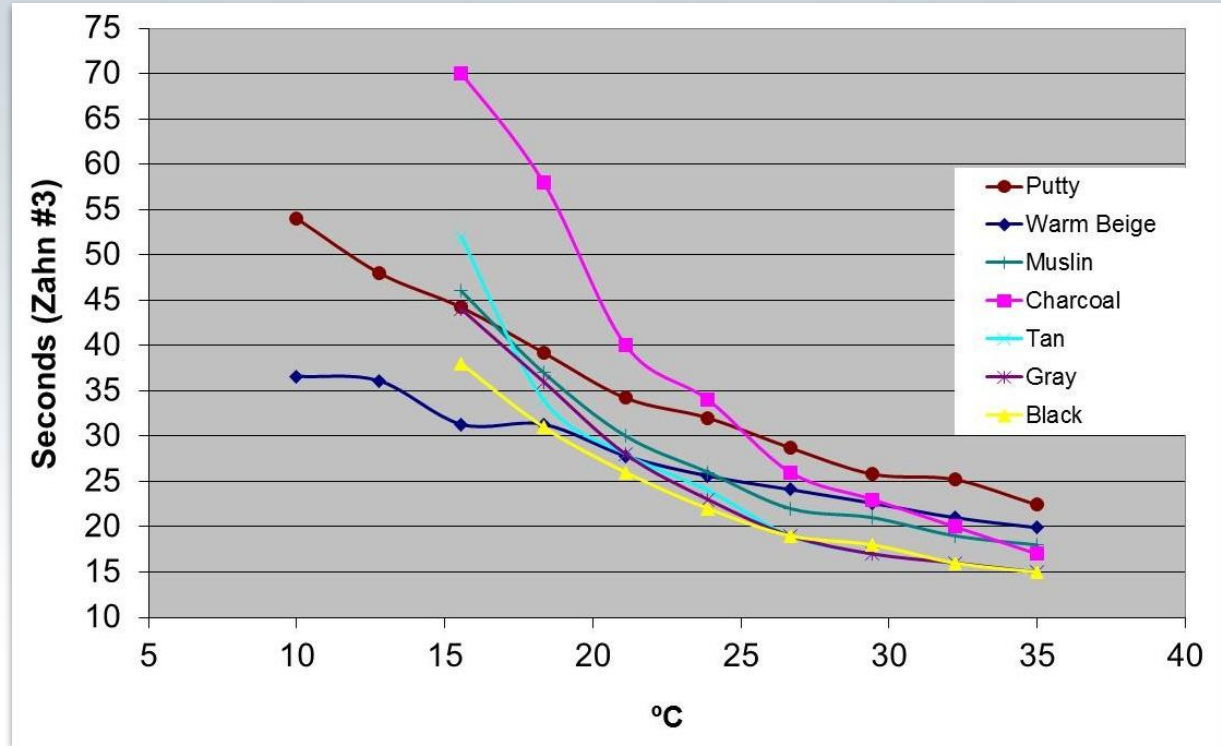


# Paint Viscosity vs. Temperature



(Valspar - O80 White Polyester)  
Data Courtesy of  
AlSCO Metals Corporation

# Temperature Vs. Viscosity by Color



Data Courtesy of Sherwin-Williams Corporation

# Impact of Temperature Variations

- On Process
  - Atomization
  - Transfer efficiency
  - Film build
  - Flow out
  - Cure rate
  - Unpredictable setups
  - Variations during run
- On Quality
  - Dry Film Build
  - Color Shift
  - Run & Sag
  - Orange Peel
  - Gloss Issues
  - Poor Adhesion
  - Blistering / Pop

# Temperature Related Defects

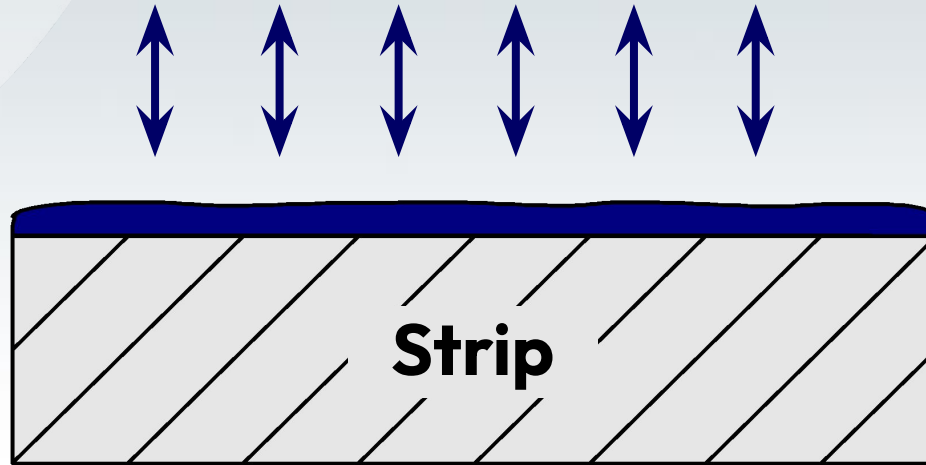
- Dry Spray
  - Higher paint temperature
  - Smaller droplet size
  - Solvent evaporates before particle hits part
- Color shift
  - Color is often related to film build
  - Low film can't hide substrate / primer
  - High film can disturb flake lay in metallics



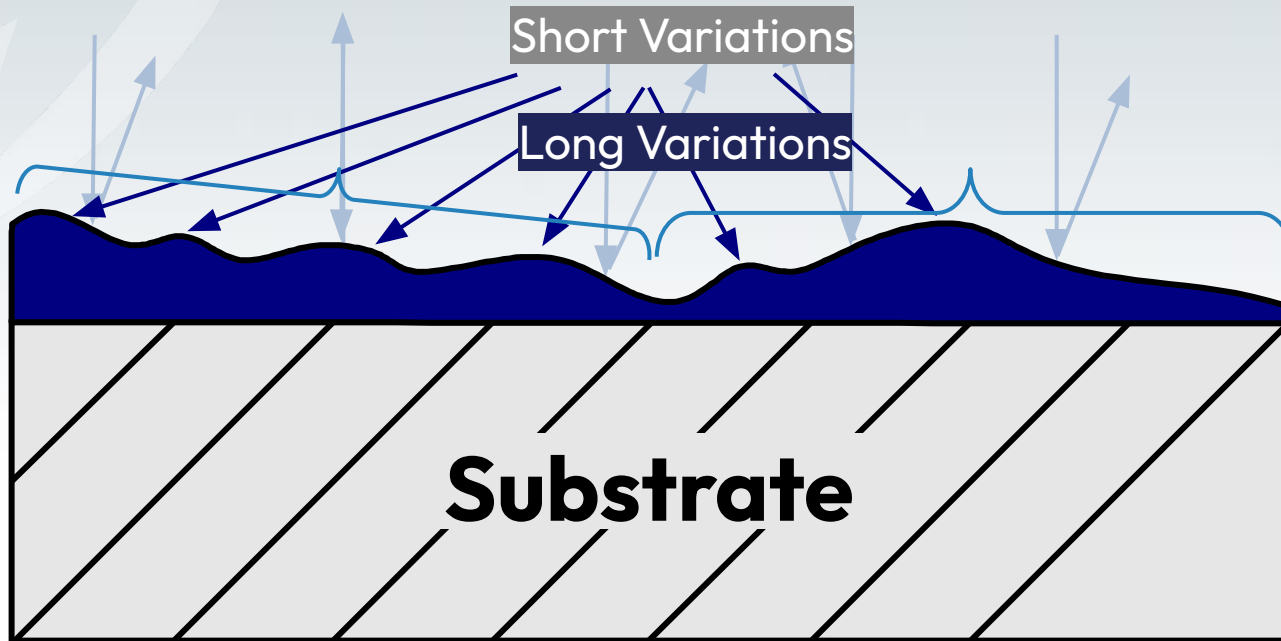
# Temperature Related Defects

- Run & Sag
  - Low Viscosity + High Film
  - High Viscosity + Low Film
- Gloss Issues
  - Uneven Issues
  - Improper Flow Out
- Orange Peel
  - Extreme Film Variation
  - Improper Flow Out

# The Perfect Film



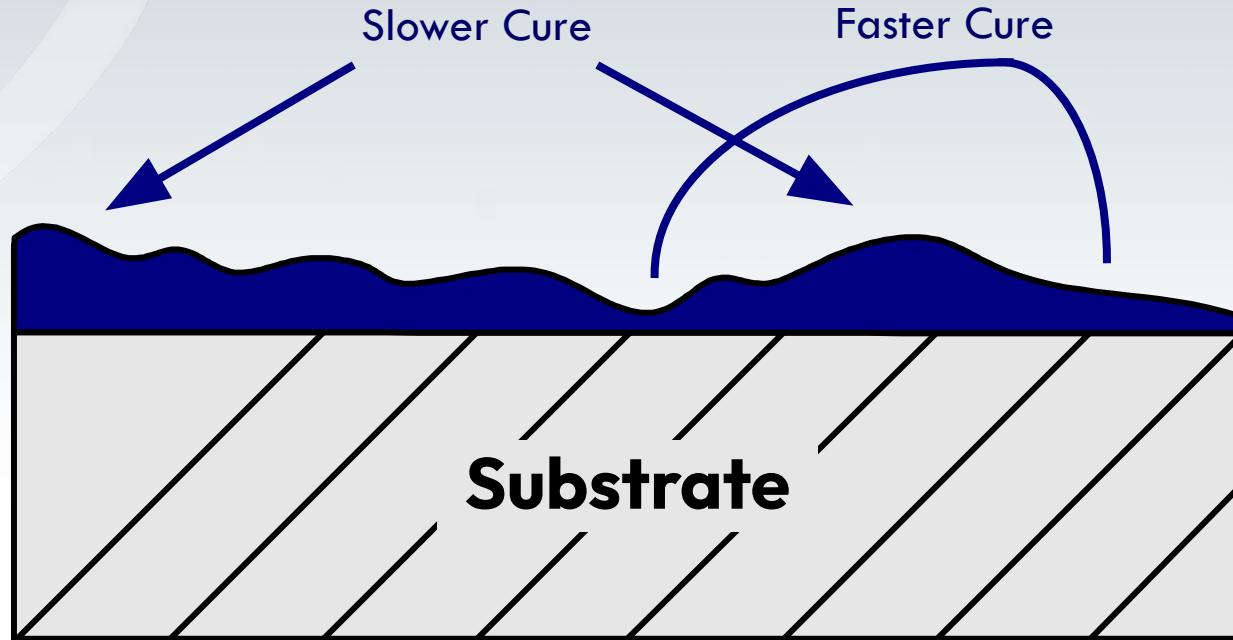
# The Structure of Orange Peel



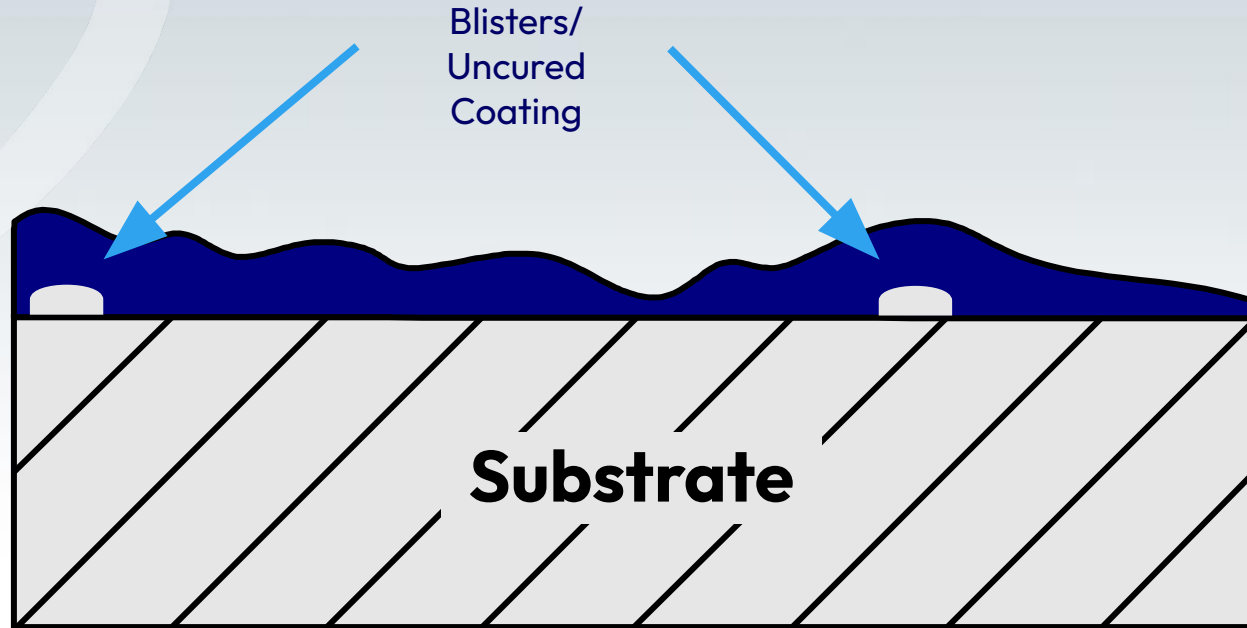
# Temperature Related Defects

- Adhesion Issues
  - Uneven film
  - Improper flow out
  - Solvent trapped under cured surface
- Blistering & Pop
  - Uneven film
  - More solvent trapped under cured surface
  - Solvent pressure exceeds film strength

# The Effect of Film Build on Cure



# Film Build Related Defects



# Let's Get Started!



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