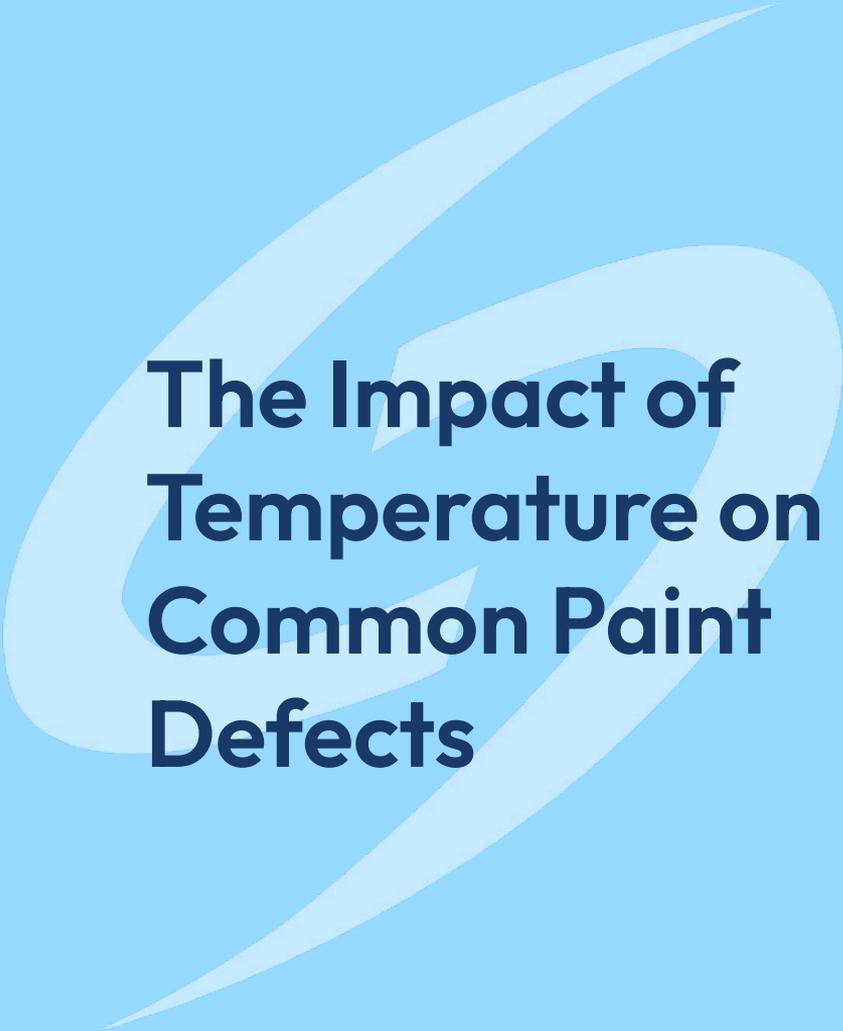




saint clair
systems



The Impact of Temperature on Common Paint Defects



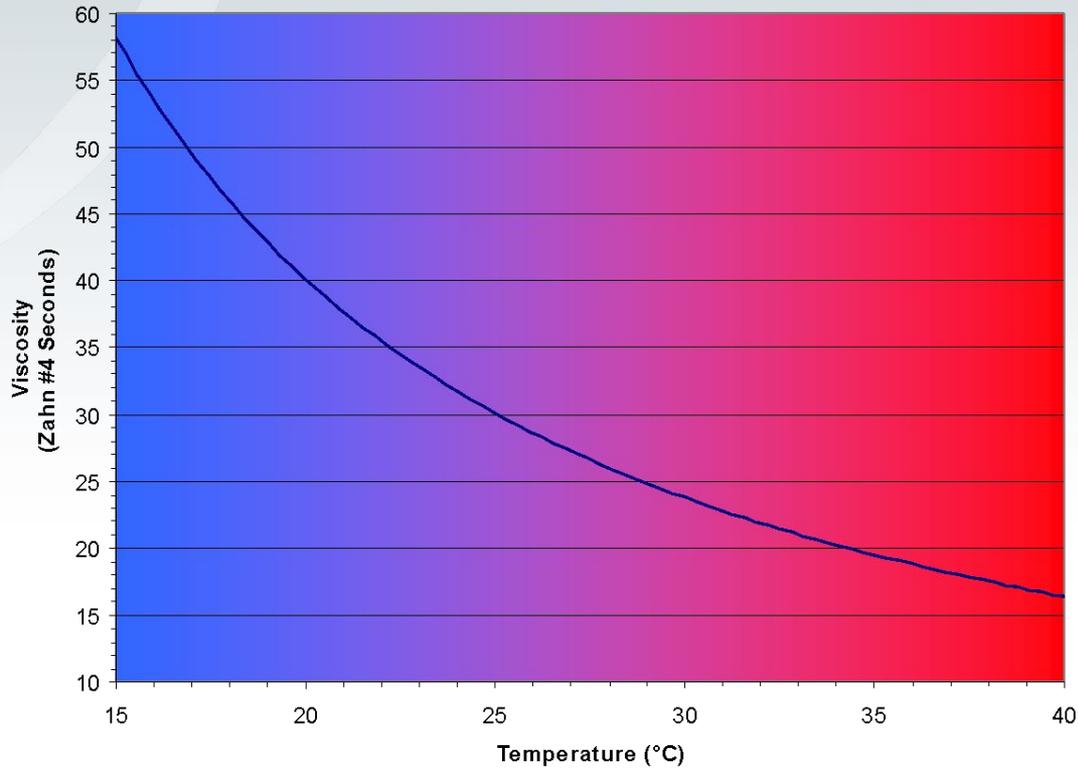
- Designers and manufacturers of advanced point-of-use temperature and viscosity control systems for industrial fluid dispensing processes since 1990
- Specializing in both recirculating and “dead-end” systems with more than 3500 active installations
- Low Viscosity (<1 CPS) to high viscosity (>1,000,000 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:

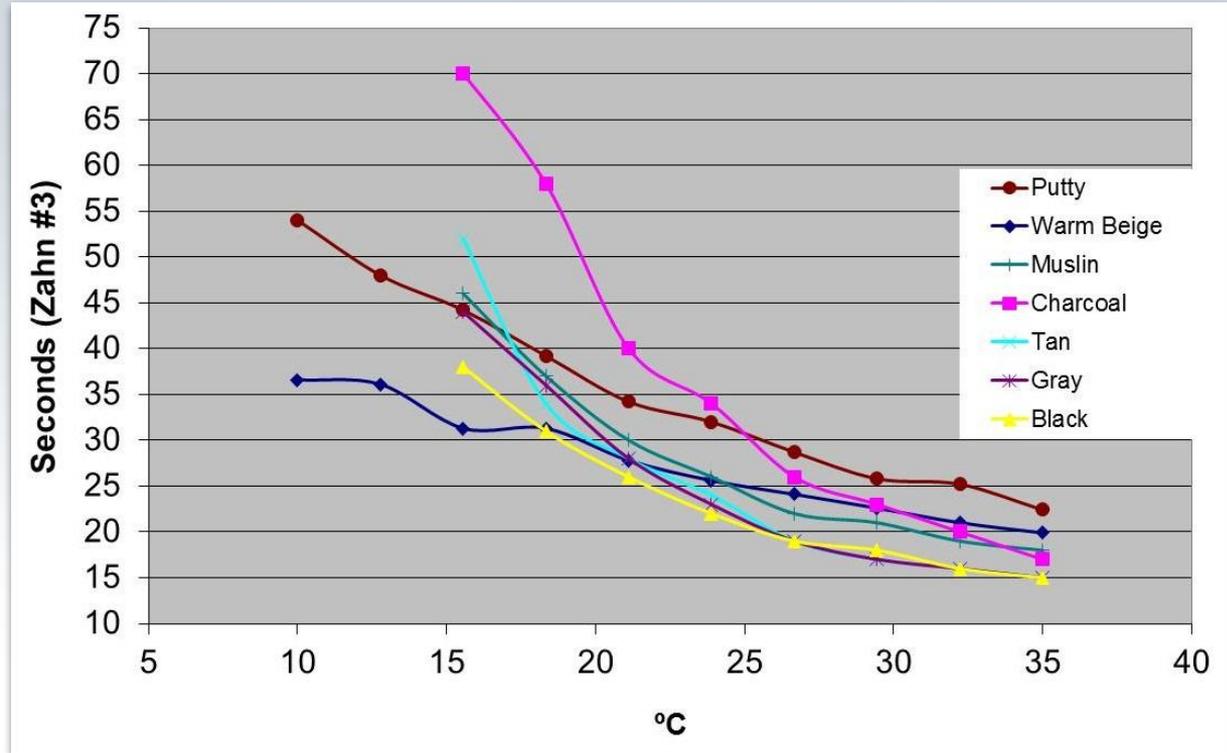


Paint Viscosity vs. Temperature



(Valspar - 080 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

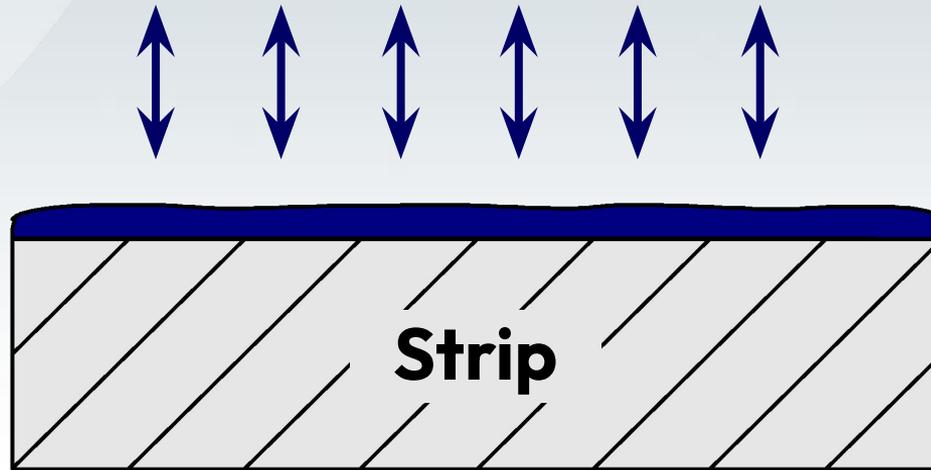
Temperature Related Defects

- 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

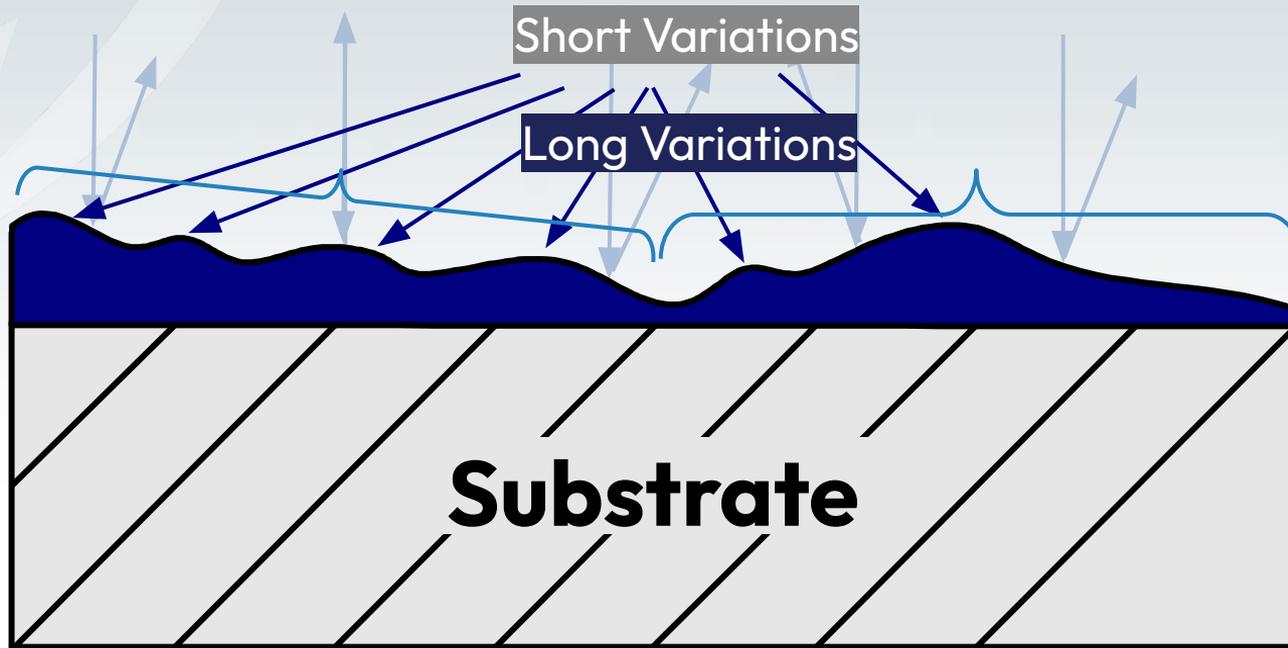
Temperature Related Defects

- 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



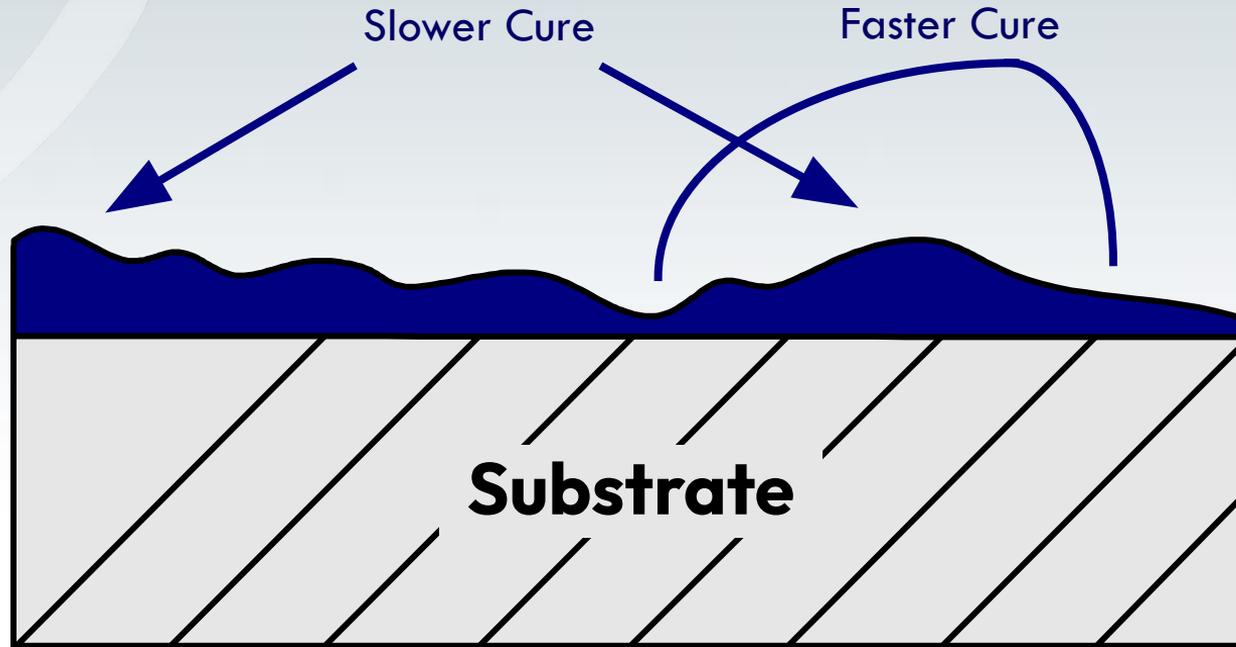
The Structure of Orange Peel



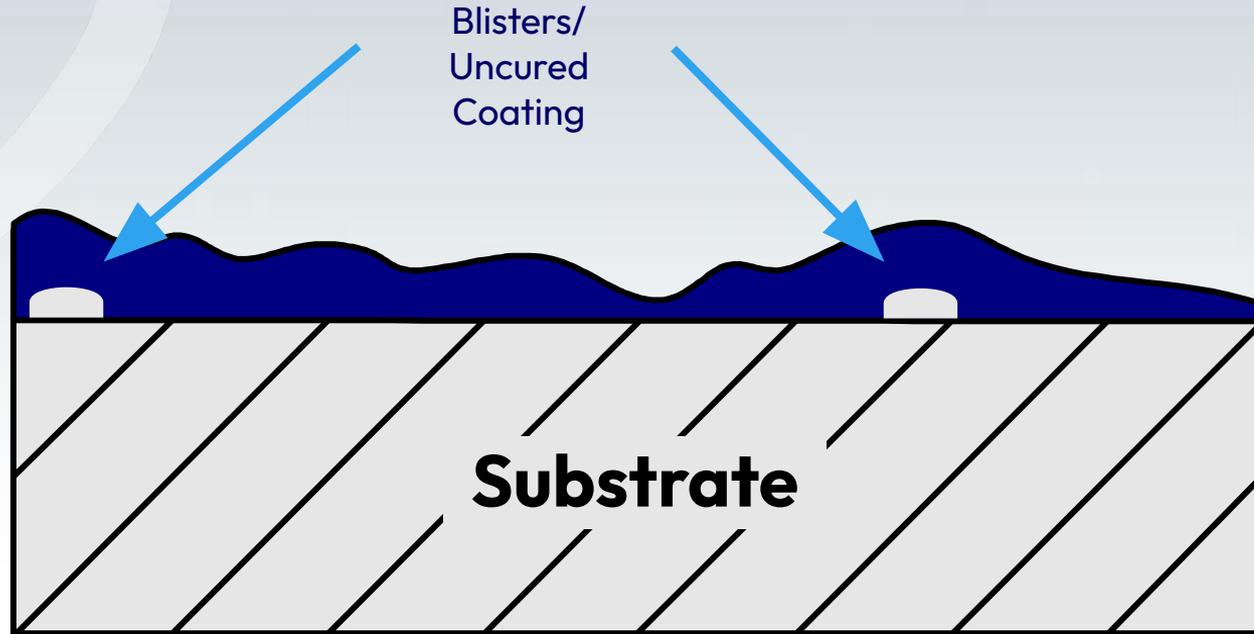
Temperature Related Defects

- 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!



Email

rgladstone@viscosity.com

- 586.255.2891
- www.viscosity.com
- 12427 31 Mile Road,
Washington, MI 48095