LAKESIDE POLYMER SERVICES

www.lakesidepolymer.com

PLASTISOLS – TECHNICAL PRESENTATION

Lakeside Polymer Services provides custom formulated plastisols to meet specific customer requirements. The following is a general definition, processing, and physical properties of plastisols. Please contact Lakeside Polymer Services directly to see how we can meet your specific needs.

Definition:

PVC particles are suspended in a liquid plasticizer which flows as a liquid. When the liquid plastisol is heated to 140-175°F, the plastisol starts to gel and turn solid. The resin particles start to swell by absorbing the plasticizer turning it into a solid gel. At this point the plastic is dry and crumbly with poor physical characteristics. At around 280°F, partial fusion occurs where the plasticizer begins to dissolve the PVC polymer. At this point the plastic has minimal physical strength. At around 350°F, the plasticizer and PVC dissolve each other and fusion occurs, yielding full physical strength.

Processing of Plastisols:

- Room Temperature, 80°F: Liquid. 100 centipoise to paste consistency.
- Pre-Gelation, 130°F: Viscosity increases.
- Gelation, 140-175°F: Plastisol gels, and deposits onto the metal when dip molded. No cohesive strength in material.
- Partial-Fusion, 280°F: Minimal physical strength.
- Fusion, 330-350°F: Gelled plastisol is heated to around 350F yielding full physical strength.
- Cooling: Plastisol is cooled.
- Demold: After the plastisol has cooled it is stripped from the mold/mandrel.

Physical Property Characteristics – Full Fused:

Solids	100 % (98-100% if processing solvents are present)
Hardness	5 shore A – 50 Shore D
Specific Gravity	0.97 – 1.6 g/cc
Tensile Strength	250 – 5000 psi
Elongation	50 – 600 %
Flexibility	Low temp flexibility to -70°F, dependent on hardness/formulation
Di-electric Strength	Up to 500 volts/mil at 20-30 mils
Color	Unlimited, including clear formulations
Flammability	Flame Resistant – Self-Extinguishing
Abrasion Resistance	Excellent
Impact Resistance	Excellent
Outdoor Weatherability	Excellent
Toxicology	FDA-NSF compliant formulations available
Regulatory	Prop 65-ROHS-REACH compliant formulations available
Cost	Excellent value vs. nylon, epoxy, polyester

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