

# Soy-PK: Soy Based Resin

## Description

Soy-PK is a proprietary soy based resin developed to replace Bisphenol-A (BPA) based resins. Soy-PK is compatible with many crosslinkers and capable of forming coatings that match the performance of BPA-based coatings.

## Features and Benefits

- Bio-based resin derived from soybean oil
- Enhanced chemical and corrosion resistance compared to traditional polyols
- Forms more stable bonds during crosslinking as opposed to less stable esters or urethane linkages
- Excellent pot life: Does not gel below 60 deg C

## Resin Properties

| Measurement                              | Method      | Soy-PK  |
|--|-------------|---------|
| Color                                    | Visual      | Amber   |
| Density (g/mL)                           | ASTM D-4052 | 1.07    |
| Viscosity @ 19°C (cPs) 100% solids       | ASTM D-445  | 264,000 |
| Viscosity @ 19°C (cPs) 50% solids in MEK | ASTM D-445  | 20      |

## Coating Properties and Performance

Soy-PK can be formulated into clear or pigmented coatings and applied to metallic substrates (aluminum and steel) using spray, dip and roller methods.

Performance of coatings obtained from Soy-PK resin is comparable with that of commercial BPA resin as illustrated in the following table.

| Measurement <sup>1</sup>           | Commercial BPA Resin <sup>2</sup> | Soy-PK <sup>3</sup>             |
|------------------------------------|-----------------------------------|---------------------------------|
| Color                              | Clear                             | Gold                            |
| MEK Rub                            | 100+ double rubs                  | 100+ double rubs                |
| Cross-hatch Adhesion               | 5B                                | 5B                              |
| Conical Mandrel Bend               | Cracked (3/4 inch diameter)       | Passed (1 inch +)               |
| Corrosion Performance <sup>4</sup> |                                   | Similar to Commercial BPA Resin |

<sup>1</sup>Coatings are applied on a low carbon steel coupon (2 mil film thickness) and cured at 190 deg C for 30 min

<sup>2</sup>Commercial BPA resin is cured with 25 PHR of Ancamine 2049

<sup>3</sup>Soy-PK is cured with 25 PHR of proprietary curing agent

<sup>4</sup>Based on electrochemical impedance spectroscopy

