



# Carbonated Soy Non-Isocyanate Polyurethane (NIPU) Elastomeric Surface Coating

Airable Research Lab has developed an elastomeric surface coating technology that cuts out the use of isocyanate-based polyurethanes. Conventional isocyanates are associated with skin sensitization, asthma, and irritation of the skin and mucous membranes. Our soy-derived non-isocyanate polyurethane (NIPU) technology avoids the hazards of isocyanates, while delivering a durable, clear, and hydrophobic coating suitable for many surfaces.

## TECHNOLOGY

Our carbonated soy NIPU elastomeric coating technology is based on cyclic carbonates derived from soybean oil that react with amines through nucleophilic ring-opening to form hydroxyurethane linkages. In this system, the carbonated soybean oil is formulated with an acrylate diluent and cured using a carbonate:amine equivalent ratio of approximately 1:1 to promote efficient network formation.

After curing at room temperature for 48 hours, this chemistry produces elastomeric, transparent, and hydrophobic surface coatings with the properties listed in the table below.

Test Type	Results
Crosshatch Adhesion	5B
Contact Angle	95°
MEK Double Rubs	50
Conical Mandrel Bend (Ø)	5.4 cm
Pencil Hardness	HB
Shore A	60

## BENEFITS

- Isocyanate-free formulation
- Bio-based, soy-derived chemistry
- Hydrophobic surface properties
- Transparent finish
- Non-tacky cured surface

## APPLICATIONS

- Metals
- Plastics
- Wood
- Concrete

*This chemistry can be tailored to your technical requirements. From flexibility to hydrophobicity, Airable will adjust our formulations to meet your product needs. Contact us today to see how this soy-based technology can work for your coating applications.*