Airable
RESEARCH LAB
WHERE SUSTAINABLE SOLUTIONS START

Waterproofing Wax Emulsion

Airable Research Lab has formulated a soy-based wax emulsion for all waterproofing applications. Water-repellant coatings are important for outdoor clothing and equipment. Textiles for outdoor use (e.g., hiking and camping) are generally treated with a hydrophobic coating that, over time, loses its efficacy. Protective coatings can be reapplied, but the common ones include a silicone or fluorinated compound, both of which may release toxic chemicals. The Airable wax emulsion is bio-based. In addition, it provides protection after one simple spray application and subsequent drying.

THE TECHNOLOGY

Our formulation is a soy wax emulsified into water. The small particle size of the wax allows the formulation to penetrate textiles and other materials to provide a hydrophobic barrier.

Testing was conducted in our lab using an apparatus that measures the angle of contact between a water droplet and a material of interest. A substrate with greater hydrophobicity will have a higher contact angle; anything greater than 120° is considered "hydrophobic." The testing compared contact angles of the Airable product and a commercial control. These early-stage results, shown in the chart on the right, indicate that Airable's formulation is comparable to commercially available waterproofing products. Samples are currently being field-tested for feedback.

BENEFITS

- Water-repellant
- ~90% bio-based/ renewable carbon
- Non-tacky, non-greasy residue
- Easy to apply
- Natural clean odor

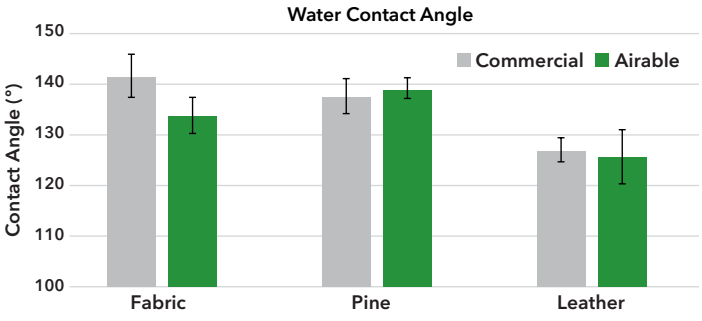

Figure 1. Contact angle measurements between Airable's soy wax emulsion and a commercially available waterproofing product. Twill was used for the fabric substrate and untreated leather for the leather substrate.

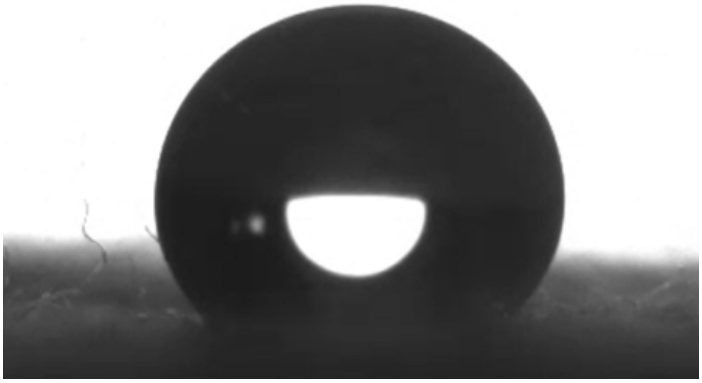

Figure 2. Water droplet on a piece of pine that has been treated with the Airable wax emulsion.

Barry McGraw ✹ Founder and Chief Laboratory Officer ✹ (614) 704-1250 ✹ bmcgraw@soyohio.org