

High-Melting Soy Wax

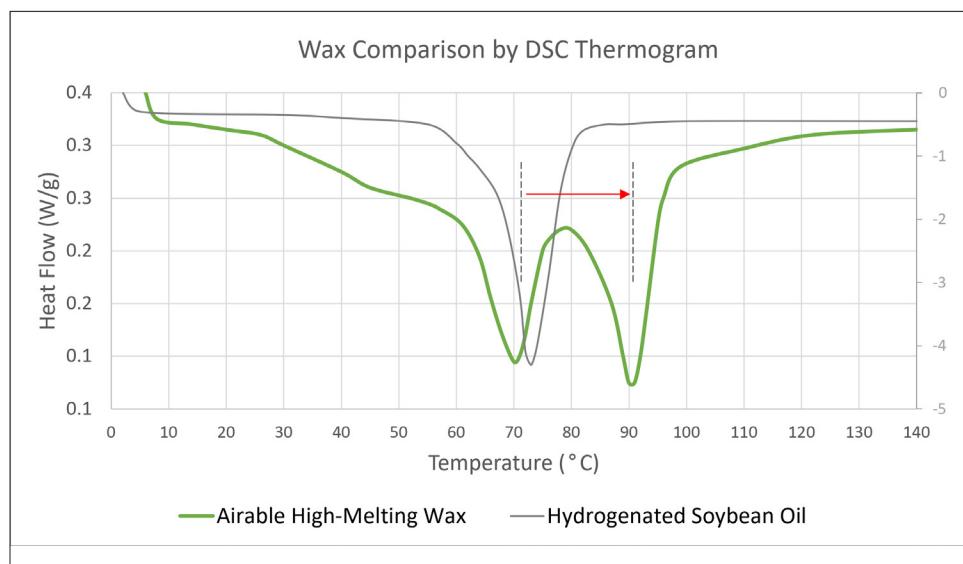
Airable Research Lab has synthesized a soy-based wax that can replace higher-melting wax in formulations. The bio-based wax provides an alternative to petroleum-based products or imported materials, such as high-performance carnauba, paraffin, and montan waxes. Airable's unique wax is made from widely available renewable resources, allowing for effective and stable supply chains.

THE TECHNOLOGY

Soybean oil is functionalized to increase its molecular weight, melting point, and crystallinity, yielding a wax with a higher melting temperature and heat capacity than hydrogenated soybean oils typically used in soy wax. These properties make the Airable wax competitive with today's high-performance commercial waxes. Airable's formulation has additional desirable properties, such as dye-dispersing qualities that support color enhancement (e.g., Solvent Black 5 for shoe polish). The soy-based wax can be formulated into a usable product that provides a durable, water-repellant coating that can be polished into a glossy finish. Airable has already used this process to develop and demonstrate several consumer products, including shoe polish and furniture paste wax.

BENEFITS

- Free of petroleum-based paraffins and montanic acids
- Dye-dispersing
- Bio-based
- Hard
- Durable
- Higher-melting
- Water-repellant



Airable researchers used differential scanning calorimetry (DSC) to study the thermal properties of Airable's high-melting wax. As the melting curves show, the wax displays elevated heat capacity compared to traditional fully hydrogenated soybean oil.