

# SOYLICONE

Airable Research Lab has synthesized a renewable, soy-based oil that can replace silicone oil in formulations. The product can be used as a low-temperature silicone replacement in formulations (polishes and lubricants), with broad potential applicability, from home DIY projects to industrial uses.

## THE TECHNOLOGY

The product incorporates functionalized epoxidized soybean oil (ESBO), adding functionality to the oil: improved wetting to substrates, better lubrication, decreased friction, and enhanced hydrophobicity. The structure indicates inherent corrosion inhibition.

Airable developed two formulations of the soy-based oil and analyzed them, comparing their characteristics with a baseline soybean oil and a commercial silicone oil. The table below provides the findings.

	Baseline	Airable	Airable	Control
	Soybean Oil	Soylicone Oil v1.0	Soylicone Oil v2.0	Silicone Oil
Specific gravity (g/mL)	0.9983	0.9379	0.920	0.9718
Viscosity (mPa.s)	605	535	37	222
Color	White	Gold	Gold	White
Opacity	Turbid	Clear	Clear	Clear
Surface tension (dynes/cm)	36.7	31.2	28.5	21

*Please let us know if your company is interested in discussing how this material may be further developed for your application.*