

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.