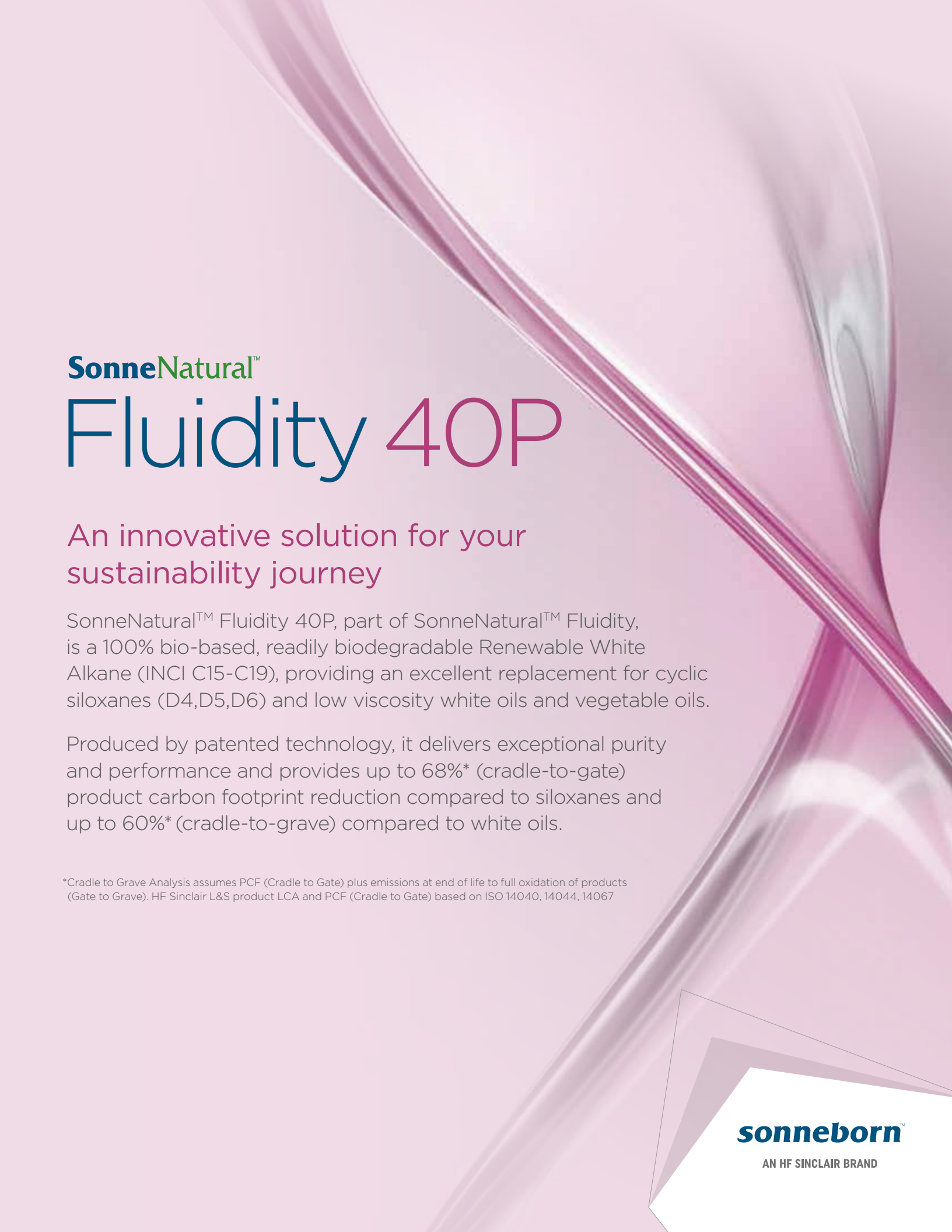




SonneNatural™ Fluidity 40P

An innovative solution for your
sustainability journey

SonneNatural™ Fluidity 40P, part of SonneNatural™ Fluidity, is a 100% bio-based, readily biodegradable Renewable White Alkane (INCI C15-C19), providing an excellent replacement for cyclic siloxanes (D4,D5,D6) and low viscosity white oils and vegetable oils.

Produced by patented technology, it delivers exceptional purity and performance and provides up to 68%* (cradle-to-gate) product carbon footprint reduction compared to siloxanes and up to 60%* (cradle-to-grave) compared to white oils.

*Cradle to Grave Analysis assumes PCF (Cradle to Gate) plus emissions at end of life to full oxidation of products (Gate to Grave). HF Sinclair L&S product LCA and PCF (Cradle to Gate) based on ISO 14040, 14044, 14067

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SonneNatural™ Fluidity 40P unique properties truly differentiate from other ingredients:

Bio-based: 100% bio-based content (ASTM D6866) with NOI of 1 (ISO 16128)

Purity: SonneNatural Fluidity 40P meets the highest purity standards set by the USP, NF, Ph. Eur., BP and JP, complies with California Proposition 65 and meets BDF02 requirements for Polycyclic Aromatic Hydrocarbons (PAHs), including 32PAH Grimmer Analysis (PAH-O397). Image 1 also shows that it does not fluoresce, indicating the absence of impurities often found in other vegetable oils

Stability: Due to its high purity, and stabilized with Vitamin E, it is UV-stable and has an anticipated shelf life of three years.

Readily Biodegradable (OECD 301B)

GMO-Free: No Genetically Modified material (PCR Testing)

Inert: Ensures consistent and unaffected product performance

Non-polar: Provides similar compatibility compared to D5 silicones

Colorless/Odorless

Carbon footprint reduction: Up to 68%* (cradle-to-gate) product carbon footprint reduction compared to siloxanes and up to 60%* (cradle-to-grave) compared to White Mineral Oils.

SonneNatural Fluidity 40P has similar sensory performance to multiple silicones, making it a great replacement in formulations.

Property	SN-F-40P	D4	D5	Dimethicone	Cyclomethicone
Cushion	+	+	+	+	+
Gloss	++	++	++	++	++
Slip	++	++	++	++	++
Playtime	++	+	+	++	++
Lubricity	++	++	++	++	++

Table 1

Cushion – refers to the perceived thickness of the product. A product with low cushion will feel like skin-to-skin contact.

Gloss – the amount of shine the product leaves on the skin after application.

Playtime – refers to how long the product stays on the skin before it is absorbed or evaporates. A product with low playtime absorbs quickly, while a product with high playtime remains on the skin for a longer period.

Slip – measurement of how a product moves across the skin. Opposite of drag/resistance. A product with high slip glides easily across the skin.

Lubricity – refers to being lubricious or having a smooth or slippery quality.

SonneNatural Fluidity 40P has similar properties compared to D4, D5, Cyclomethicone and Dimethicone, as you can see in the Typical Property Values table.

Typical Property Values

Property	Method	SN-F-40P	D4	Cyclomethicone*	D5	Dimethicone
Viscosity @ 40°C, cSt	ASTM D445	3.2/4.5	2.25	3.04	3.05	4.62
Flash Point, °C	ASTM D92	130 Min.	51	76	73	94
Specific Gravity @ 25°C/25°C	ASTM D4052	0.7700/0.8000	0.9640	0.9650	0.9650	0.9304

*Cyclomethicone = Mixture of D4, D5, D6

Table 2

SonneNatural Fluidity 40P is a versatile ingredient applicable for a wide variety of personal care products, including body oils, sun care products, hair care products, cleansing products and skincare applications due to its non-comedogenic**, non-irritating***, and high-purity characteristics.



Image 1

SonneNatural Fluidity 40P does not fluoresce, indicating the absence of impurities. This also denotes superior purity compared to common vegetable oils.

**based on Comedogenicity Clinical Testing completed on Fluidity 40P, 20 subjects aged 18-40.
***based on HRIPT Clinical Testing completed on Fluidity 40P, semi-occlusive patch, 112 subjects aged 20-70 and EpiOcular™ Eye Irritation Test, OECD 492.

To request a sample or learn more about our products, visit www.sonneborn.com/sonnenatural