

NEOSSANCE™

Squalane

Analytical Data - 1.29.2014

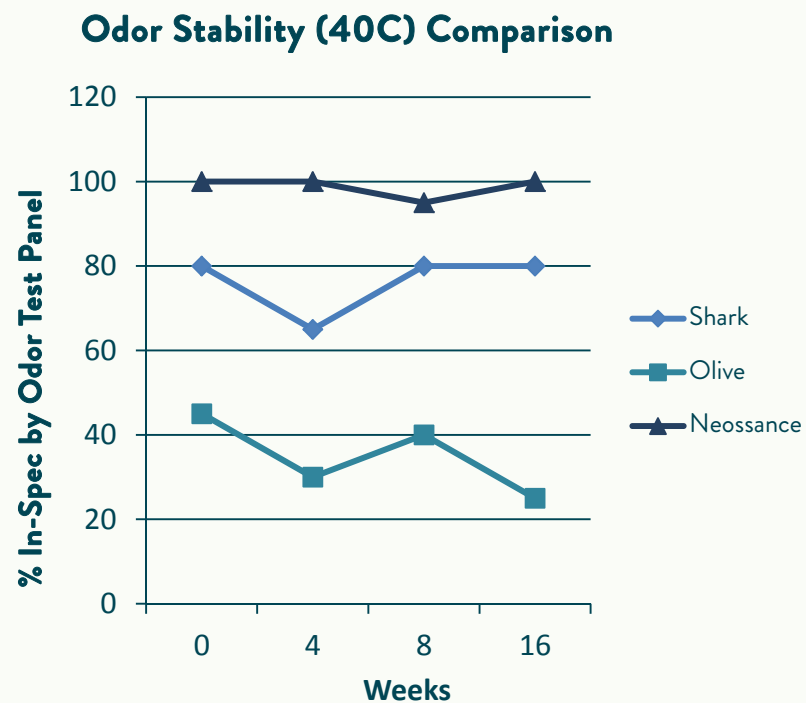


Neossance Squalane has outstanding performance characteristics:

- Lower odor intensity based on Amyris' sensorial testing
- Lower volatile impurities and a high degree of saturation which contributes to very low odor and long term stability
- Density, RI and viscosity values which are equivalent to shark, due to the high C₃₀ purity
- Excellent long-term stability

Property	Typical Shark Squalane	Typical Neossance Squalane	Typical Olive Squalane
Purity	99%	92 to 94%	87% to 92%
C30 purity	99%	99%	87% to 92%
Initial Odor Intensity	80% in-spec	100% in-spec	45% in-spec
Saturation	47 mg-Br/100g	5-50 mg-Br/100g	>500 mg-Br/100g
Volatile Impurities	244.2 pA*s	51.4 pA*s	1104 pA*s
Stability*	Stable	Stable	Stable
Density	0.8084 g/mL	0.8085 g/mL	0.8177 g/mL
Viscosity	35.9 cP	35.5 cP	41.7 cP
Refractive Index	1.4520	1.4521	1.4558

* Chemical, physical, sensorial properties,; tested at 40C for 16 weeks; 20-ml in 100-ml closed container

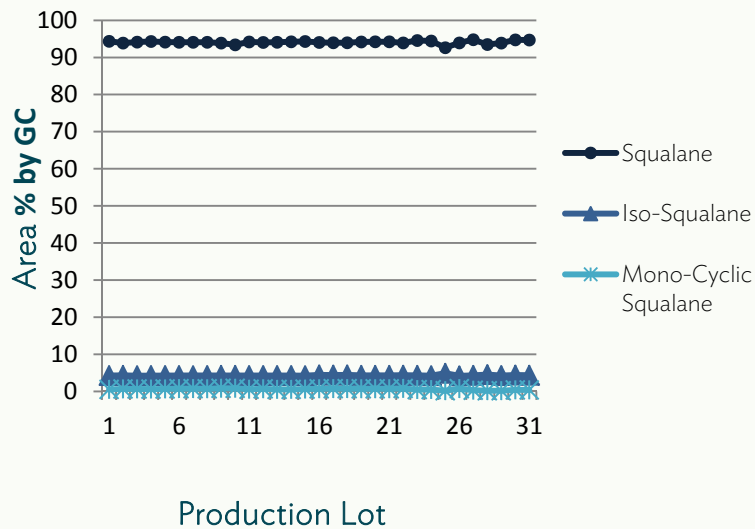


THREE SQUALANE COMPARISON: THE DATA



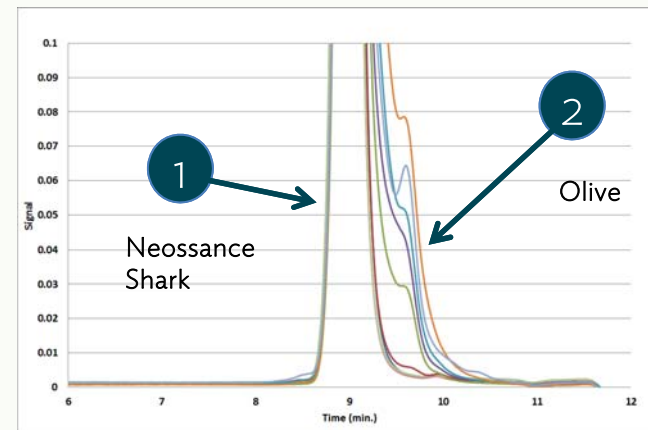
Amyris uses a rigorous manufacturing and purification process that ensures the product profile is very consistent lot to lot. This ensures consistent product performance. As shown in the chart below of 31 consecutive 2013 production batches, the C₃₀ ratio in Neossance squalane is the very consistent.

C₃₀ Content in Neossance Squalane in 2013 lots



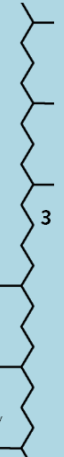
In contrast, olive-derived squalane can have significant variation lot-to-lot in its impurity profile. Gel permeation chromatography of shark, olive and Neossance squalane shows shark and Neossance are nearly pure C₃₀ and very consistent over many production batches. Olive squalane has many low MW impurities that vary across lots.

GPC Analysis of Impurities in Shark, Olive and Neossance



- 1 Shark and Neossance are nearly all C₃₀ and consistent lot to lot
- 2 Olive Squalane has many low MW impurities that vary lot to lot

THREE SQUALANE COMPARISON: BATCH CONSISTENCY



- Comparison of the cold stability of the three types of squalane shows Shark and Neossance Squalane stay clear after 24-hrs at 4C, while olive squalane develops haziness.
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THREE SQUALANE COMPARISON: COLD STABILITY

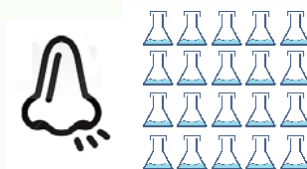


SAMPLE PREPERATION:



- Flasks are 100-ml, and cleaned using a comprehensive, multi-step process
- 20-ml sample is placed in the capped flask
- Sample is incubated at 60C for 1 hour before odor test
- Any odor-causing volatile compounds will accumulate in the headspace

THE PANEL:



- Each sample is tested by 20 panelists
- Each panelist grades the sample's odor intensity as same, better or worse compared to a standard
- Panel also typically has secret check standards included to grade the performance of the testers

PANEL SCORING:

$$\text{Score} = \frac{B + S}{20} \times 100\%$$

- "Better" and "Same" scores are summed, divided by the number of tests (20), and multiplied by 100%
- Odor specification is a score of 85% or better
- The secret check standard data is reviewed to track week-to-week performance of the odor panel

SENSORIAL TESTING SQUALANE: THE ODOR PANEL

