



Proven Soy-based Ingredients

FUNCTIONALITY TESTING **AT A GLANCE**

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HIGH OLEIC SOYBEAN OIL

FRY EVALUATION

High oleic soybean oil was a top performer during a 24-day functionality and sensory study testing french fries prepared in:

HIGH OLEIC SOYBEAN OIL

HIGH OLEIC SUNFLOWER OIL

MID OLEIC SUNFLOWER OIL

CONVENTIONAL SOYBEAN OIL

75% OLEIC CANOLA OIL

65% OLEIC CANOLA OIL



High oleic soybean oil's overall performance was consistent with high oleic sunflower oil and outperformed other high-stability options, such as 75% oleic canola oil.

High oleic soybean oil presented one of the lowest levels of total polar materials (TPM) percentages and polymerization in the test. After 24 days of frying, high oleic soybean oil left less than 5% polymerization on the equipment, translating to less equipment maintenance.

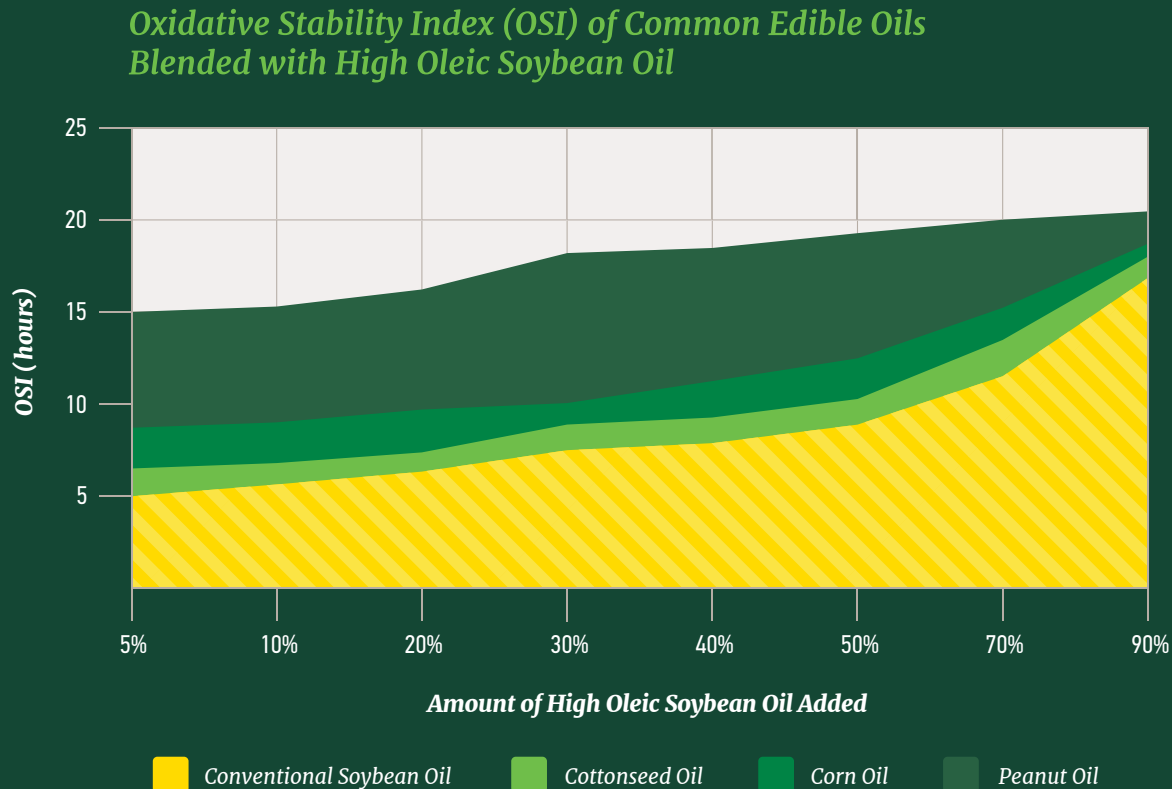
High oleic soybean oil was a top performer on overall likeability in a taste test which evaluated various sensory characteristics of french fries, such as flavor, aroma, texture and appearance.



HIGH OLEIC BLENDS EVALUATION

A nine-month fry study evaluated blends of peanut, cottonseed, corn and soybean oils with high oleic soybean oil. The blended oils contained incremental amounts of high oleic soybean oil that demonstrated its impact on increasing the fry life of conventional oils while maintaining flavor characteristics and cutting cost.

The study showed that blending high oleic soybean oil with conventional frying oil extends the Oxidative Stability Index (OSI) of the oil, increasing shelf and fry life.



DONUT FRYING EVALUATION

Cake and yeast-raised donut deep frying studies prove that donut fry shortening made with high oleic soybean shortening performs similarly to traditional shortenings made with partially hydrogenated oils. The studies compared partially hydrogenated soybean oil (approximately 31% trans fat), a palm/soy blend, conventional soybean shortening and high oleic soybean shortening.



High oleic soybean shortening produced donuts similar in texture, interior grain, spread, height and size to partially hydrogenated soybean oil in both cake and yeast-raised donut frying studies.



The TPM of high oleic soybean shortening was similar to partially hydrogenated soybean oil and significantly outperformed the palm/soy blend.

A close-up photograph of a hand using a white piping bag to apply frosting to a cupcake. Several other cupcakes are visible in the background, some already frosted with white swirls. The scene is brightly lit, showing the texture of the frosting and the golden-brown tops of the cupcakes.

BAKERY APPLICATION EVALUATION

A 12-month shelf life study evaluated the oxidative stability, application review and texture analysis of high oleic soybean, high oleic canola, conventional soybean, canola, partially hydrogenated and palm bakery shortenings.

A circular inset image showing a close-up, high-magnification view of a crumbly, golden-brown texture, likely representing the internal structure of a baked good. The texture is porous and irregular, with many small holes and peaks.

**TEXTURE
ANALYSIS**



High oleic soybean shortening showed the least amount of change in texture compared to alternatives, including partially hydrogenated oil.



High oleic soybean shortening produced the most similar viscosity and specific gravity, the measure of air added, to partially hydrogenated shortening. Icing made with high oleic soybean shortening is smooth, light, provides less color bleeding and is easy to decorate with.




Cookies made with high oleic soybean and conventional soybean shortenings had a more tender mouthfeel.



Cakes made with high oleic soybean shortening were most similar to cakes made with partially hydrogenated shortening.

PUFF PASTRY & PIE CRUST EVALUATION



Soy-based baker's margarines, formulated with high oleic soybean oil or conventional soybean oil or combinations of both, outperformed palm and partially hydrogenated oil in puff pastry applications in terms of finished bake height and structure, as well as desired honeycomb texture, which adds to overall likeability.

Soy-based ingredients performed on par with butter, which is considered the “gold standard” for puff pastry.

Puff pastries made with high oleic soybean baker’s margarine produced the ideal height and even honeycomb layers.



High oleic soybean shortening produced pie crusts with desired characteristics, including evenly browned, textured, flaky crust with an ideal finished product height and minimal shrink.



16305 Swingley Ridge Road
Suite 120
Chesterfield, MO 63017



QUALISOY.com
info@QUALISOY.com
(314) 579-1580

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