

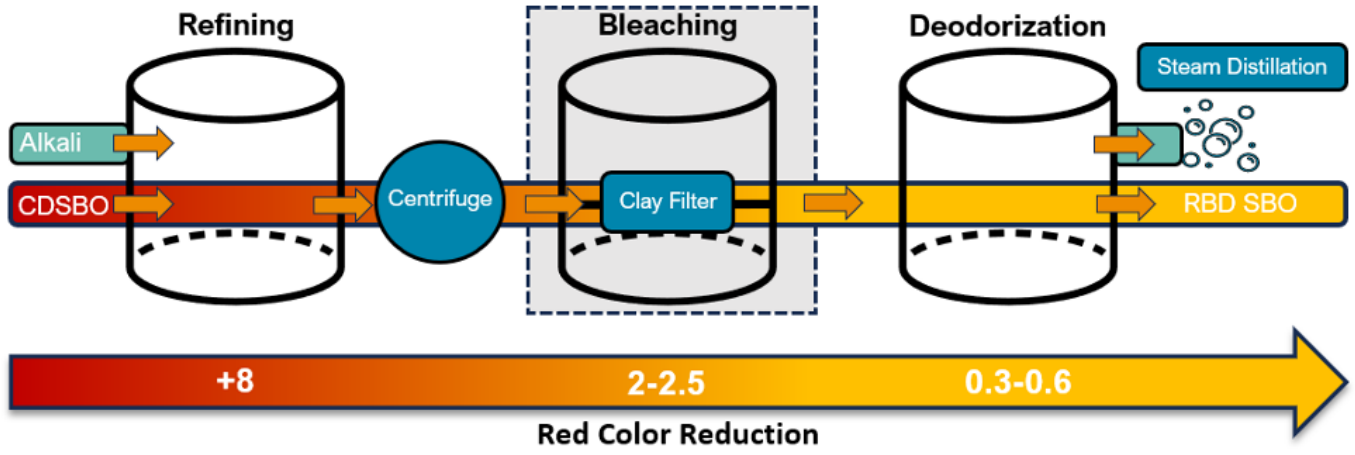
SOYBEAN OIL QUALITY FACT SHEET - RED COLOR

Overview

Red color in crude degummed soybean oil (CDSBO) comes from carotenoids, or red fat-soluble pigments, that are naturally present after processing the whole soybean. The level of pigments in CDSBO relates to the quality of the whole soybeans at harvest, including weed seeds, immature soybeans, soil conditions and more.

Soybean Oil Refining

The primary goal of the bleaching stage is to remove pigments like carotenoids and chlorophyll, as well as other oxidative products, by filtering neutralized oil through a bleaching clay.¹ Removal of pigments ensures successful quality assessment using a Lovibond test. While CDSBO can have red color of greater than 8 on the Lovibond scale, industry standards require refined, bleached and deodorized soybean oil (RBD SBO) to be less than 0.8 red.²

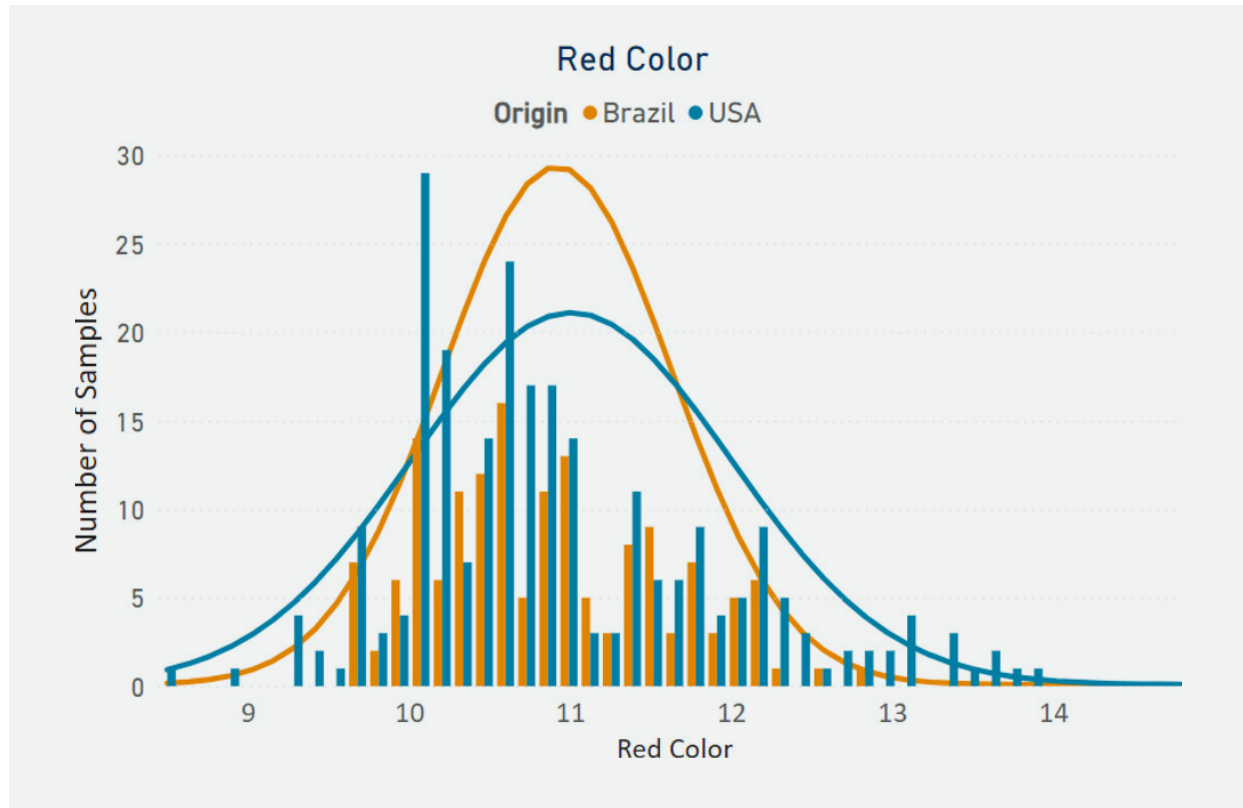


Refining Cost and Yield Implications

High levels of red color require higher dosages of bleaching clay. High red color levels may also require substituting neutral clay with acid-activated clay. Acid-activated clay is a more costly input because it is treated with acids³ to improve its ability to absorb color. These adjustments to bleaching clay result in higher refining costs and will impact refined oil yield as more oil is absorbed by the bleaching clay.⁴

U.S. Soybean Oil

Differences in red color by origin have been noted anecdotally by those in the refining industry. Recent data collected from testing CDSBO that originates from U.S. Soy and Brazilian soybeans show remarkably similar red color.⁵ While this data collection is ongoing, it is important to monitor because lower red color concentrations reduce refining costs during the bleaching stage, improving profit margins for the final refined oil.



¹Common industry practice is to use a neutral bleaching clay.

²Dunford, N., (2016). *Edible Oil Quality*. Oklahoma State University.

³Hydrochloric or sulfuric acid.

⁴Empirical methodology is used in estimating clay dosages in relationship to red color.

⁵[Soybean Oil Value Calculator](#), U.S. Soy.

To learn more about how U.S. Soy can enable your business, please contact your U.S. Soybean Export Council (USSEC) region or country representative; or submit your contact details via <https://ussec.org/contact/>.

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