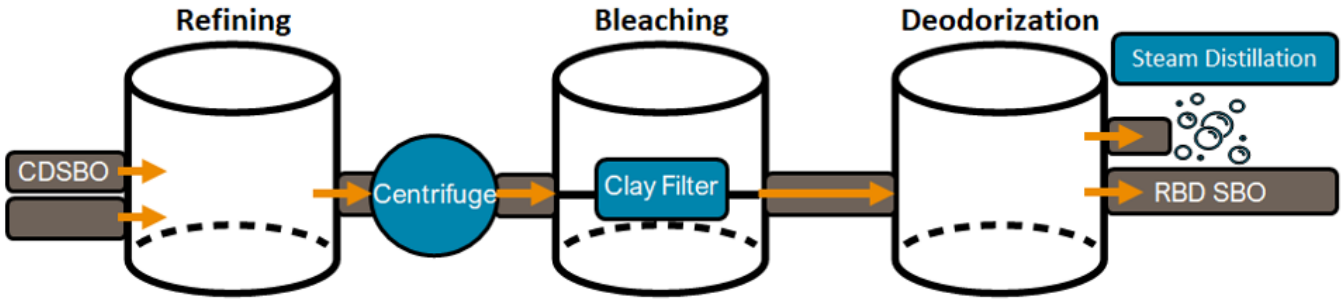
SOYBEAN OIL QUALITY FACT SHEET - NEUTRAL OIL LOSS

Overview

Neutral oil loss (NOL) represents the quantity of oil lost during the process of caustic refining, impacting final refining yields. The American Oil Chemists' Society (AOCS) Method for NOL considers the ratio of neutral oil to triglycerides and unsaponifiable matter. These materials are polar compounds, like free fatty acids and phosphatides, that are removed as crude degummed soybean oil (CDSBO) is refined to produce refined, bleached and deodorized soybean oil (RBD SBO). After removal of these substances, the loss is the difference between total neutral oil and 100%.

Soybean Oil Refining

The majority of NOL occurs during the refining stage via the elimination of soaps and gums. Lower losses of oil yield occur from the elimination of oxidative products in the bleaching stage by clay and the deodorization stage by steam distillation.



NOL Methodology (AOCS method Ca 9f-57)

Passing oil through a column of activated alumina removes free fatty acids and miscellaneous nonfat substances. The loss equals the difference between total neutral oil and 100%.

→ 100% - ***Neutral Oil*** = NOL%

Neutral Oil = CDSBO - (FFA & misc. nonfat substances removed by activated alumina)

Refining Cost and Yield Implications

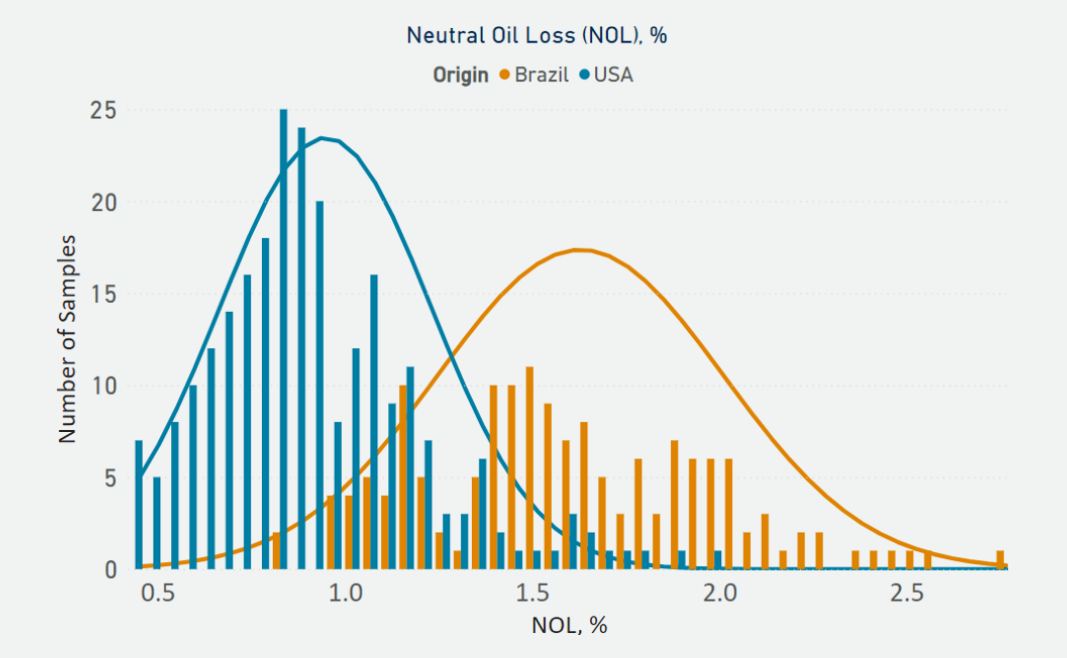
High NOL assumes larger dosages of alkali solution and bleaching clay to remove unwanted compounds, increasing input costs. High NOL also assumes higher levels of unwanted materials that need to be removed during the refining process, which will lower refining yields.

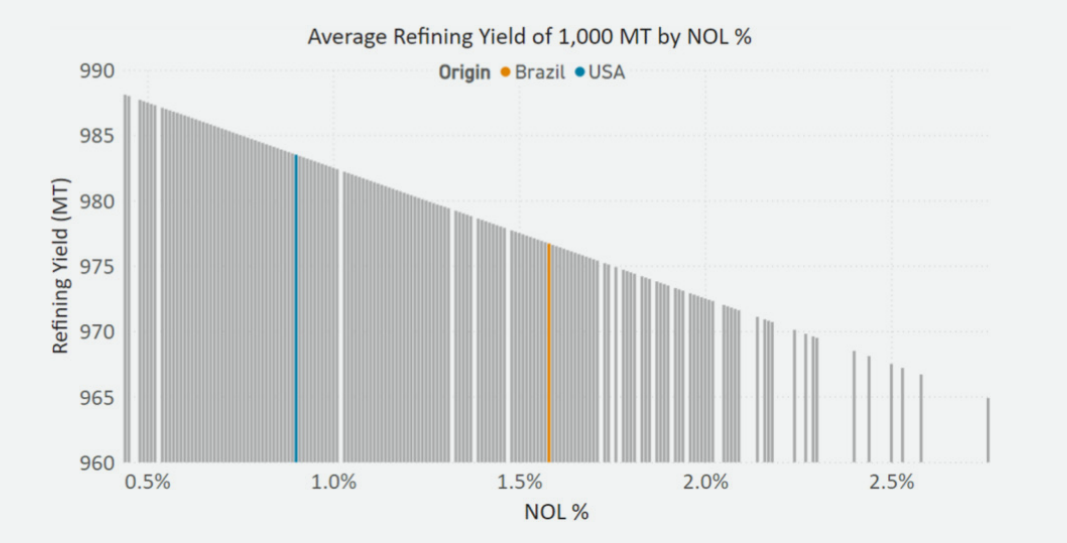
Daily Soybean Oil Refining Yield	U.S. Soy	Brazil
Daily Capacity, MT	1,000	1,000
Median NOL, %	0.90%	1.58%
Expected Refining Oil Loss, %	0.50%	0.50%
Incremental Loss from Clay, %	0.25%	0.25%
Refining Oil Loss, %	1.65%	2.33%
Soybean Oil Refining Yield, MT	**983.50**	**976.70**
U.S. Soy Advantage, MT	**6.80**	

SBO Refining Yield = (1,000 MT)*(1-Refinery Oil loss%)

U.S. Soy Advantage

CDSBO from U.S. Soy has lower NOL percentages compared to soybean oil of other origins.[1] Lower NOL reduces input cost in the refining stage and increases the overall refining yield, improving profit margins for the final refined oil, assuming standardized losses from clay and refinery specific mechanical losses.





[1]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/.

About U.S. Soybean Export Council (USSEC): The U.S. Soybean Export Council (USSEC) focuses on differentiating, elevating preference, and attaining market access for the use of U.S. Soy for human consumption, aquaculture, and livestock feed in 80+ countries internationally. USSEC members represent the soy supply chain including U.S. Soy farmers, processors, commodity shippers, merchandisers, allied agribusinesses, and agricultural organizations. USSEC is funded by the U.S. soybean checkoff, USDA Foreign Agricultural Service (FAS) matching funds, and industry. Please visit www.ussec.org for the latest information, resources, and news about USSEC and U.S. Soy internationally.