

Loss in the Caustic Refining of Edible Oils and the Necessity of its Control

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One of the most important step in the edible oil refining is the elimination of free fatty acids or the acidification. This step is important not only for consumer acceptance, but also because it has the maximum economic impact on production. The good operation of this step can decrease the loss of edible oil in process and affect strongly the final price of production. Industrially the most commonly used method for deacidification is alkali neutralization known mainly as caustic refining. In this method, there is considerable oil loss due to the hydrolysis of neutral oil by caustic. In addition, loss of oil also occurs in the form of occlusion in soapstock, thereby reducing the overall yield of refined product. In the present paper, we have measured these excessive losses of neutral oil in the refinery units of JAHAN vegetable oil Company (Karaj, Iran). Caustic refining units were studied several times in different dates. The samples were withdrawn from input and outputs of each centrifugal separator. The flowrates and operational conditions of each unit were also recorded. The results showed a very variable excessive loss which changes from 0.75 to 2.4 times of sum of free fatty acids and phosphatide contents of crude oil. The crude oil mainly used in the refinery units was degummed soybean oil. Regarding this result, it was concluded that the optimization and control of operation conditions in caustic refining is essential for diminishing the oil losses significantly.

Keywords: Vegetable oil, Caustic refining, Oil losses, Occlusion

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