

IMPROVEMENT OF TECHNOLOGY OF HYDROGENATION OF VEGETABLE OILS ON STATIONARY CATALYSTS

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ANNOTATION

Vegetable oils are oils extracted from the seeds or, less frequently, from other parts of the fruit. Like animal fats, vegetable fats mixtures of triglycerides. Examples of oils derived from seeds are soybean oil, grape seed oil, and cocoa butter. Olive oil, palm oil, and rice bran oil are examples of oils from other parts of the fruit. In common usage, vegetable oil may refer only to vegetable oils that are liquid at room temperature. Vegetable oils are commonly consumed; are known as unsaturated fats, which are mainly derived from petroleum.

Keywords: Hydrogenation of vegetable oil; technology; stationary catalysts.

INTRODUCTION

Such workshops, which have not existed anywhere so far, have the capacity to process 10 tons of raw materials per day. This workshop is managed by 1 or 2 people. Small production workshops are easy to use in farmers and private farms, compact and useful for efficient processing of small quantities of seeds. Residents and small entrepreneurs can easily use it. Since the modular shop is of small capacity, it does not require a special power network, and it is sufficient to use the existing electricity in settlements or farms. The small production modular shop is placed in a container and is equipped with modern production systems. In particular, the workshop is equipped with raw material cleaning, grinding, cold pressing, filtering, refining and packaging equipment depending on the level of need. With the help of this shop, 75% of its equipment is localized, all types of oily raw materials, including flax, sesame, sorghum, sunflower, soybean grains and seeds of fruits, grapes, and polys products are processed and different types of oils are obtained. Not only domestic businessmen, but also foreign investors are interested in purchasing a modular workshop specializing in the production of vegetable oil. In particular, to date, contracts have been signed with companies such as.

"Balkh vegetable oil corporation" and "Spinzar Kunduz corporation" of the Islamic Republic of Afghanistan on the delivery of a modular plant. took place. Acting Minister of Finance of Afghanistan, Abdul Khodi Arghandevol, representatives of the administration of Balkh region and Afghan business circles, as well as local journalists took part in the event. 4 modular workshops created by specialists of "Uzyogmoysanoat" association were bought by our company "Balkh vegetable oil corporation", says Shafiqullah Shahrani, director general of the Department of State Production Enterprises of the Islamic Republic of Afghanistan. This technological system gave the result we expected, and the price is affordable. This, in turn, aroused great interest in our other companies. In particular, the company "Spinzar Kunduz corporation" located in the city of Kunduz signed an agreement on the purchase of 5 modular shops. This technological system will be delivered to our company in the near future. In the

future, we intend to continue cooperation between the oil industry of Afghanistan and Uzbekistan, because this cooperation is beneficial for both sides, technological systems equipped with full-cycle equipment were exported.

One of the most important hydrogenation reactions in practice is the incomplete hydrogenation of vegetable oils into margarine, cooking oil, and other food products. Vegetable oils are obtained from soybean, cottonseed and other crops. They include esters, that is, triglycerides of fatty acids of varying degrees of unsaturation. Oleic acid $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{COOH}$ has one double bond $\text{C}=\text{C}$, linoleic acid has two and linolenic acid has three. The addition of hydrogen to break this bond prevents oxidation of the oils (randomization). This increases their melting point. The hardness of most of the obtained products depends on the degree of hydrogenation. Unsaturated vegetable oils can be partially or completely changed by "hydrogenation" to fats with a high melting point. The hydrogenation process involves "economy" of oil at high temperature and pressure in the presence of hydrogen and a catalyst, usually a powdered nickel compound. When each carbon-carbon pair is chemically reduced to a single bond, two hydrogen atoms each form a single bond with two carbon atoms. The destruction of double bonds by adding hydrogen atoms is called saturation; as the degree of saturation increases, the oil becomes fully hydrogenated. Oil can be hydrogenated to increase resistance to irritation (oxidation) or to change its physical properties. As the degree of saturation increases, the viscosity and melting point of the oil increases. The use of hydrogenated oils in food products has never been entirely satisfactory. Because the triglyceride is somewhat protected by the terminal fatty acids, most of the hydrogenation occurs at the terminal fatty acids, making the resulting fat more fragile. Naturally more saturated fats margarine made from hydrogenated soybean oil is more plastic (more "spreadable") than margarine made from hydrogenated soybean oil. Unsaturated cis fatty acids are converted to unsaturated trans fatty acids in the oil blend due to the heat used in hydrogenation.

LITERATURES

1. Vegetable oils. <https://uz.m.wikipedia.org/wiki>.
2. Hydrogenation of vegetable oil. <http://hozir.org/mavzu-katalizator-zaharlari.html>