

## USE OF CELLULOSE BASED FILTERS IN THE OIL AND GAS INDUSTRY

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Refining that to the process of cleansing fats from impurities and companion substances is said. Refining is a complex of various physical and chemical processes complex, the application of which allows you to extract companion substances from the oilgives. With the character of these processes, the nature of the oil and the quality of the refined oilis determined. From the important problems that are put in front of the refining processone is that the oil can be extracted along with cleaning it from unnecessary substancesmaintaining the naturalness of secondary products and secondary products consists of effective use as.In order to obtain high-quality edible oils, they must be purified as much as possible from relevant substances, that is, mechanical impurities, phospholipids, waxes, soapy substances and hydrophobic fractions. This process was carried out on the basis of the technology developed by us, using special centrifugal devices based on physical methods, purification of phospholipid concentrate and pressure filtration of mono- and dibasic unsaturated

fatty acids, and hydration method of oil microfiltration. During the initial period of filtration, before a thick layer is formed on the surface of the filter material, the outgoing filtrate becomes cloudy. Therefore, it is collected separately and sent for re-filtration. In normal operation of the filter press, the pressure should not exceed 1.5-2.5 kgs/cm. If the pressure increases and the filtering speed decreases, the filtering is stopped and the filter-press is released. Its disadvantage is low production efficiency. Various filters are known based on mechanized and automated release of sediments. Two filters are usually installed for continuous operation. Modern continuous filters come in disk, cartridge form. Before filtration, a thin layer is usually formed on the surface of the filter element.

Table-1

**Technical indicators of the filter material obtained as a result of experiments**

<b>Technical indicators</b>					
<b>Types of filters offered</b>	<b>Transfer property</b>	<b>Density, g/m<sup>2</sup></b>	<b>Thickness, μm</b>	<b>Range of application, μm</b>	<b>Ash level, %</b>
F2040	Slowly	90	170	8-9	<0.007
F2041	Quick	90	170	21-25	<0.007
F2042	Too slow	90	170	2-3	<0.007
F2043	Average	90	170	15-17	<0.007
F2044	Slow down	90	170	2-5	<0.007
F2045	Very fast	90	170	27-30	<0.007

**The result of the experiment and its analysis.** Oil quality indicators meet the requirements of GOST 1129-93 for the highest grade sunflower oil. In the process of pressure leaf filtering and extraction of mechanical impurities and carcinogenic substances from oil, its quality is improved, in particular:

- the acid number is reduced to 5.6 mg KOH/g due to the extraction of acidic phosphatides. In addition, the adsorption of fatty acids on fragments of phospholipid emulsions is expected;

- the color of the oil improves as a result of the sorption of pigment particles and the removal of melanophosphatides;
- other hydrophilic compounds (proteins, carbohydrates) are obtained;
- particles of the solid phase remaining after primary cleaning are removed. The result of the experiment is presented in the table below.

Table-2

### Indications for purification of sunflower oil

№	Naming of pointers	Unrefined sunflower oil	Refined sunflower oil in belting fabric	Sunflower oil refined in a filter obtained from a composite of cellulose and basalt fiber	GOST requirement
1	Color number, mg of iodine	35	12	9	9
2	Acid number, mg KON/g	6	0,4	0.2	0.2
3	Mass fraction of phosphorus-containing substances, %	0,8	йўк	йўк	йўк
4	Mass percentage of moisture and volatile substances, %	0,3	0,2	0.1	0.1
5	Flash point, °C	225	225	225	225
6	Degree of transparency, fem	40	25	22	22
7	Peroxide value, 1/2 O mmol/kg	-	5	5	5

As can be seen from the table, all the quality indicators of oil refined in the filter material offered by us are positive.

**Conclusion.** Summarizing the results obtained in laboratory and production conditions, it can be concluded that the introduction of the technology of further processing of vegetable oils with the help of hydrocoagulator and filters made of membrane cellulose and basalt fiber composition allows not only deep purification of phospholipids and mechanical impurities, but also extraction. In the case of the highest grade sunflower oil, this gave a high result. It can be used both for direct consumption and as a base product for effective deodorization of vegetable oil and neutralization of free fatty acids.

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