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Research of the Composition Motor Oils and Cleaning Methods

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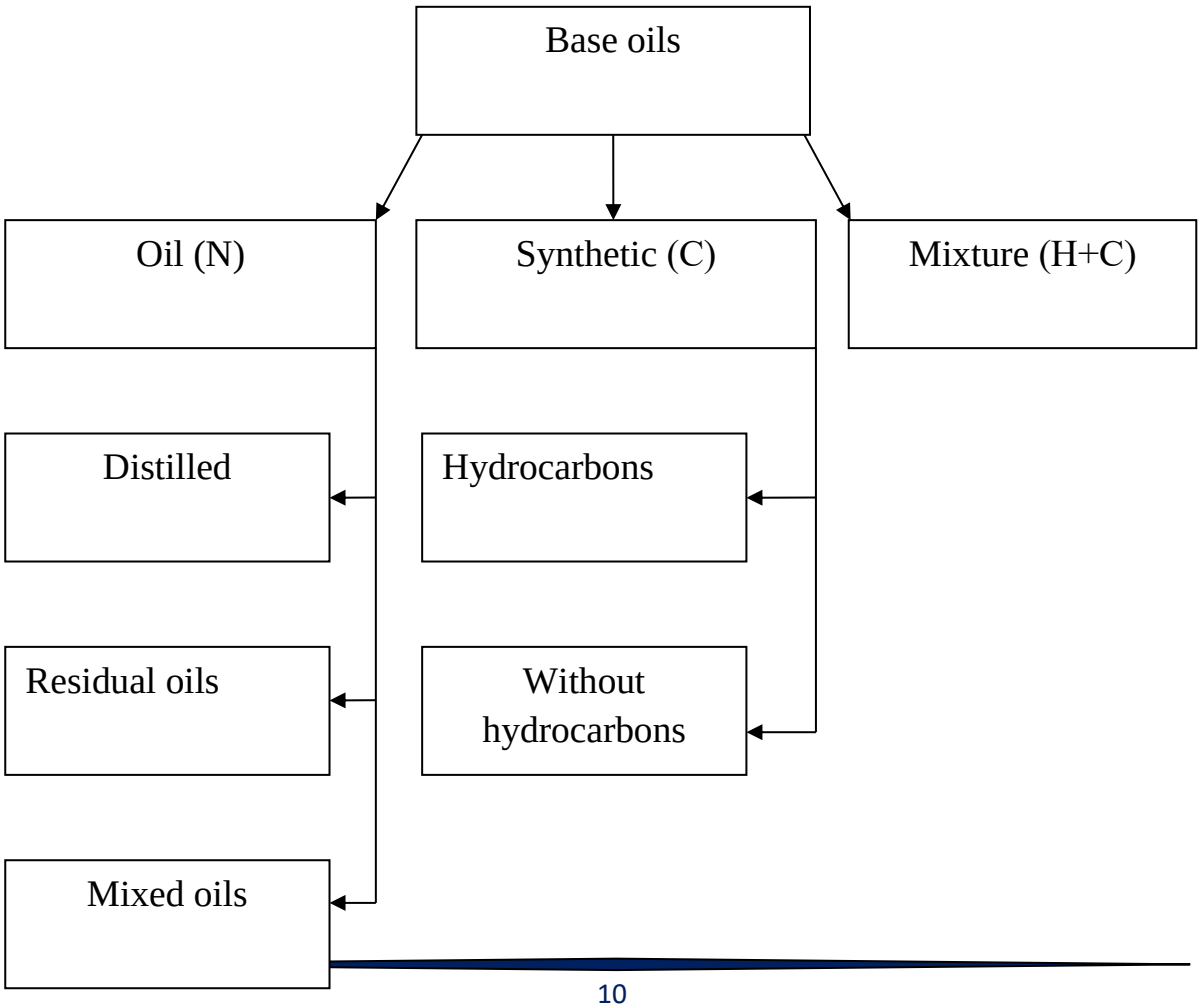
Abstract. Petroleum oils are divided into basic and commodity types. Commercial oils are usually obtained by adding a composition of compounds to the base oils, i.e., substances are added that enhance the good properties of the base oils or give them important new properties. Sometimes base oils are marketable even if the compounds do not settle. For example, industrial oils. Synthetic oils are generally considered to be base oils. Base oils are divided into three types: Petroleum (mineral) oils are obtained in oil refining processes

Keywords. Organic synthesis, base oils, residual oils, physical cleaning method, adsorption cleaning

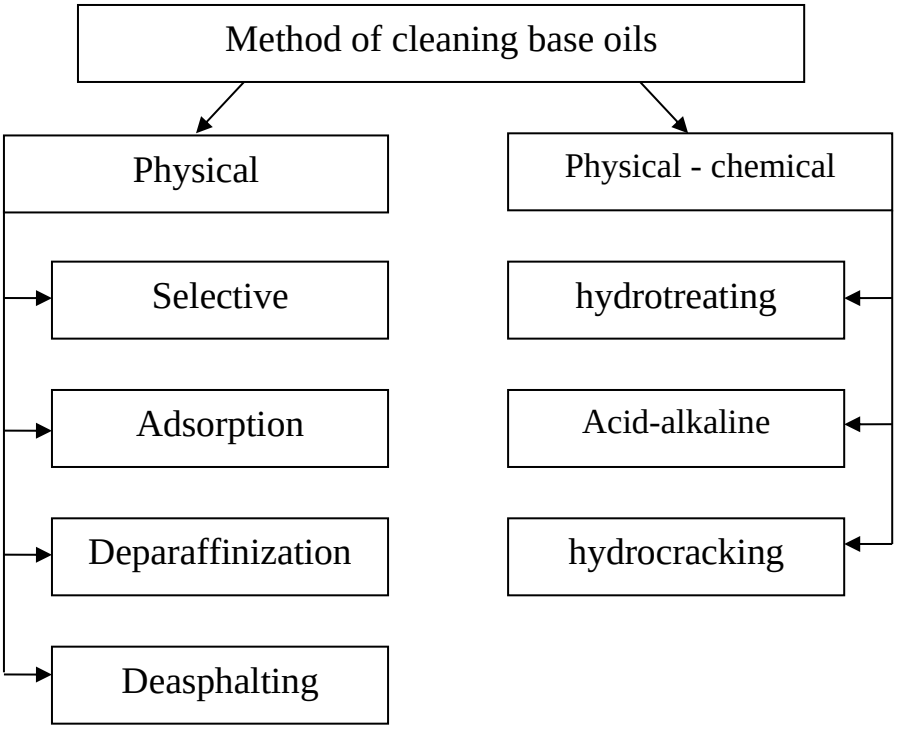
Introduction. These oils are obtained by organic synthesis from hydrocarbon and heteroatomic compounds. Partially synthetic oils. These oils are a mixture of petroleum and synthetic oils. In some cases, vegetable and animal oils are added to a mixture of petroleum and synthetic oils. Petroleum-based oils are classified by physical and chemical properties (viscosity, solidification temperature), raw materials (paraffin or naphthenic), method of production and application. They are obtained from oil fractions that are separated as a result of vacuum driving of fuel oil. The traditional production scheme aims to produce three different fractions that differ in the boiling temperature range. These are polycyclic aromatic hydrocarbons, resin-asphaltenes, petroleum acids, nitrogen, sulfur, oxygen-retaining organic compounds and some metals.

Methods. The method of purification of base oils is divided into physical and physicochemical methods. According to the method of physical purification, oils are

divided into oils obtained as a result of selective, adsorption purification, oils obtained after deparaffinization and deasphalting processes. These are fractions in the boiling temperature range of 350-400, 400-450 and 450-500 °C. Sometimes, in order to produce quality oils, an additional one or two oil fractions are separated, which are pumped in a vacuum in the range of 350-560 °C. Residual oils are separated from the deasphaltate obtained as a result of tar deasphalting. Compounded oils - these oils are obtained by mixing distilled and residual oils in certain proportions. Oily distillates and deasphaltize retain components that require removal in their composition. According to the physical-chemical purification method, oils are divided into hydrotreated oils, oils obtained after hydrocracking and acid-alkaline cleaning. It should be noted that these methods of purification undergo physical and chemical processes. But they are called physical when physical processes are increased. Accordingly, when physicochemical changes are considered to be fundamental, they are called physicochemical processes.1-Rasm. Motorli moylar tuzulishi



Selective solvents (purified with phenol, furfural or N-methylpyrrolidone to remove polycyclic aromatic compounds, resins, asphaltenes, and heterochlorides. In adsorption cleaning it is cleaned of resins and asphaltenes. High-quality oils are obtained by hydrocracking the vacuum distillate on the basis of technologies of ExxonMobil and Chevron technologies and then by hydroparaffinization. In a number of plants, oils are obtained by hydroisomerization of low-quality product obtained by deparaffinization. Acid-base cleaning helps to remove polar hetero compounds and polycyclic aromatic compounds. However, compared to other methods, this method is inefficient and is very harmful from an ecological point of view. Isoparaffin and naphthenic hydrocarbons, chemically stable low-cycle naphthenes, naphthenic aromatic components and high molecular weight sulfur-containing compounds have the best viscosity-temperature properties. Abrasive properties are maximal in aromatic compounds and resins. But they have unsatisfactory viscosity - thermal properties and anti-oxidation properties. Therefore, they need to be removed.



Synthetic base oils are divided into hydrocarbon (poly-a-olefins and alkylbenzenes) and non-hydrocarbon (esters of dibasic acid and polyhydric alcohols). Synthetic and petroleum oils are sometimes combined to make up for the deficiency

of one of the components. The disadvantage of synthetic oils is that they do not meet the required level with rubber products and their corrosive activity against non-ferrous metal alloys. Synthetic oils have the following advantages over petroleum oils: low viscosity, low evaporation and low consumption of oils in the range (temperature up to 150 ^{o}C - viscosity index), high enough oxidation resistance and thermal stability, low residue formation tendency, high tensile strength and the possibility of strong surkov under high temperature conditions, increased oil change times, low friction losses and fuel economy. The quality of commercial oils is ensured by the addition of additives. Increased production of base oils and synthetic oils belonging to group III - mainly poly - a olefins is expected. But their high cost limits their widespread use. Therefore, they are mainly used in combination with petroleum oils. In the U.S. and Canada, group II base oils account for 50% and group III base oils for 15%. Their share in the base oils produced is constantly increasing.

Classification of base oils

Group	Quantity, in% (mas)		Viscosity index	Production technology
	Тўйинган бирикмалар	олтингугурт		
I	<90	>003	80-120	Conventional (selective cleaning)
II	>90	<003	80-120	Hydropower
III	>90	<003	>120	Solid hydrocracking (hydrocracking / hydroisomerization)
IV	Poly olefins (synthetic)			Organic synthesis
V	Compounds not included in the remaining groups I-IV			

Conclusion. Using the latest technology, mineral oils do not allow to obtain products that fully meet consumer demand, even in the purified state. Adding various compounds to the refined oil fraction-base oil can provide the most important

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operational properties. Additives (compounds) added to oils can be classified according to their chemical composition, mechanism of action and application.

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