

## Oligoalkyltoluenes as synthetic oils

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In some cases petroleum oils do not satisfy the increasing requirements of the contemporary technology in spite of the presence of the efficient additives. In such cases synthetic oils are used. The wide spreading for ground technology were oligomers of high olefins, that is polyalphaolefinic oils. It is necessary to note that such oils have unsaturation and requires hydration. From the above – mentioned, more simple method of the preparation of analogous oils was developed by us. The method consists of high olefins as individual and as their fractions which undergo oligomerization in the medium, containing toluene . Process is conducted in the presence of catalyst of aluminum chloride. Which is the catalyst for oligomerization and alkylation, that is at oligomerization of  $\alpha$ -olefins oligomerization product is alkylated by toluene- oligoalkylation is occurred. In consequence unsaturation of the obtained products disappears and from the scheme of the preparation of oils stage of hydration is excluded. Composition and structure of the obtained oligoalkyltoluenes was investigated by the method of IR and PMR- spectroscopy. It was shown that during the process are formed all possible isomers of toluene, mainly, 1,2- and 1,2,4- substituted benzols are formed. The conduction of the process of preparation of synthetic oils in the presence of toluene have the following advantages: first of all toluene in the composition of the used solution has function of homogenizator of aluminum chloride, dissolving in toluene forms with it complex which reliefs the process, secondly changing the quantity of toluene in the composition of solution we can regulate kinematic viscosity of the obtained oil, that is there is not necessity to conduct fraction in order to obtain synthetic oil with the necessary viscosity. The comparative investigation of the obtained oils with oils obtained by oligomerization of high  $\alpha$ -olefins without toluene has shown that oligoalkyltoluenes have more high stability to thermooxidation. It is explained by the absence of unsaturation in the new samples and by the presence of aromatic fragments in them, that is oligoalkylated toluenes. The developed method gives the possibility to obtain synthetic base oils, having the meaning of kinematic viscosity at 1000C in interval of 4-22 mm<sup>2</sup>/s, viscosity index 120-135, congelation point minus 35- minus 50, flash point 190-2050C. With the use of synthetic oligoalkyltoluenes were developed synthetic lubricating compositions, which have been tested successfully.

### Biography

Akhmedov A.I. was graduated in 1970 from Baku State University and after graduation from the University he entered the post-graduated course of the Institute of Chemistry of Additives. He defended Ph.D. and Doctoral theses. At present he is the leader of the laboratory of polymeric additives of the Institute of Chemistry of Additives, Professor, member of the dissertation council on confer of the scientific degree of Doctor of Science and work as teacher at Azerbaijan State Pedagogical University. Under his leadership eight post-graduate students defended candidate dissertation. He is the author of more than 250 scientific works, which were published, mainly, in prestige Russian journals, also he is the author of two monographs in the field of polymeric additives. Akhmedov's publications are devoted to the development of polymeric additives, which improve a number of exploitation characteristics of lubricating oils and viscous temperature also, that is they increase the meaning of the viscosity index.

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