

STUDY OF MTSAREKHEVI OIL

Nino Nonikashvili, Nino Kavtaradze, Teimuraz Uchaneishvili

Petre Melikishvili Institute of Physical and Organic Chemistry at Iv. Javakhishvili Tbilisi State University

Research of physico-chemical and operational properties of oils of each mine by means of modern tool methods together with the scientific novelty has the great applied value, because on the basis of its development of theoretical and practical prerequisites for further rational reprocessing of oils is possible. For this purpose oil of Mtsarekhevi mine is studied which is located in the territory of Dedoplistskaro municipality and belongs to XII - Licence block.

Mentioned oil is characterized by a low yield of petrol (16%) and light fractions (from initial boiling point up to 350°C; 43%), the total sulfur content does not exceed 0,002%. By aniline point determination the group composition of petrol fraction (from initial boiling point up to 200°C) was studied. It is determined that the fraction mainly consists of paraffin and naphthene hydrocarbons (97%), while amount of aromatic hydrocarbons is small. The total amount of saturated hydrocarbons (paraffins and cycloalkanes) is 93% and the ratio of isoparaffins and n-paraffins is about 3.

Distribution of isomers of separate paraffin hydrocarbons for the petrol fraction is represented below. The data is obtained by means of GC/MS HP 6890/5973.

Chart 1. Isomeric distribution of separate alkanes; % mas.

C <sub>5</sub>	n-C <sub>5</sub>	52.2
	i-C <sub>5</sub>	47.8
C <sub>6</sub>	n-C <sub>6</sub>	44.0
	2.2- DMC <sub>4</sub>	1.2
	2.3- DMC <sub>4</sub>	5.9
	2- MC <sub>5</sub>	28.6
	3-MC <sub>5</sub>	20.5
	Ratio: Monosubstituted/Disubstituted	6.8
	C <sub>7</sub>	n-C <sub>7</sub>
2.2- DMC <sub>5</sub>		1.1
2.3- DMC <sub>5</sub>		10.3
3.3- DMC <sub>5</sub>		1.1
2.4- DMC <sub>5</sub>		4.6
2- MC <sub>6</sub>		15.0
3- MC <sub>6</sub>		21.8
3- EhC <sub>6</sub>		0.0
Ratio: Monosubstituted/Disubstituted		2.2

According to the table, methyl-substituted structures considerably prevail among alkanes (2-6 times), while the concentration of heme-substituted structures is insignificant.

Various distillate oil products by rectification of the researched oil are obtained. Obtained distillates (120-230°C and 120-240°C), by the content of general sulfur, initial temperature of crystallization and by other indicators meet standard requirements of jet fuel (TC-1 and TC-2, ГOCT 10227-62).

Fractions 180-350°C and 240-350°C by the operational indicators are in accordance with fuel for high-rotative diesel engines (trademark "Д3"; ГOCT 4749-49), the real content of these fractions is about 21-30%. Investigated oil belongs to the heavy oil, is characterized by the small exit of the petrol and light distillates. By technological classification is determined by the code: 1T<sub>2</sub>M<sub>2</sub>I<sub>1</sub>P<sub>2</sub>.

References

1. Al. A. Petrov. Hydrocarbons of petroleum, M, 1984, 263pp.
2. Reference book of Refiners. L. "Chemistry", 1986, 648pp.
3. Al. A. Petrov. Chemistry of alkanes, M., 1974.