



OIL AND GAS RESERVOIRS AND COVER ROCKS, THEIR CHARACTERISTICS.

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Collectors and their characteristics. Rocks that have the ability to store oil, gas, and water in their bosom and to return fluids when the necessary conditions are created are called colliekt orjins [1].

All rocks found in nature are divided into 3 groups depending on their appearance: sedimentary, igneous, and metamorphic. 99% of oil and gas deposits discovered in nature are in sedimentary rocks and only 1% belong to igneous rocks.

Collectors are divided into 3 types depending on the rock they are made of: granular, fractured and mixed collectors.

Granular aggregates are mainly composed of rocks such as sand, sandstone and siltstone. In such reservoirs, oil and gas are collected in the spaces and pores between the small particles of rocks.

Illuminated coals are widely distributed mainly in limestone and dolomite rocks. If useful spaces in such rocks consist of a system of various cracks, crack collectors are formed. The system of cracks is developed in horizontal and vertical directions, usually they cross each other. Piles of oil and gas can accumulate in these cracks.

Mixed collectors are a combination of granular and crack collectors. Usually, useful spaces in such collectors consist of spaces between rock particles, pores, fissures, microkarst spaces and cavities. Such collectors can be found in sand, sandstone and siltstone rocks.

Studying the physico-chemical and geological properties and lithological composition of reservoirs is one of the main factors in the correct use of oil and gas fields.

The reservoir rocks are characterized by their porosity, permeability and fluid saturation [2].

Porosity is different, and even in one sample, different types can be found. In real rocks, with densification, open porosity decreases more rapidly than total porosity.

Total porosity varies from one percent to several tens of percent, depending on the amount in the rock, depending on the different composition of the rock (Table 1).

In the process of its formation, rock passes through 2 periods: the first period consists of the processes of sedimentogenesis and diagenesis, during which sedimentary rocks are formed, which are folded to form rock, and the second period, catagenesis and includes the processes of hypergenesis. Primary porosity in sedimentary rock occurs as a result of compaction of igneous rocks. Porosity is formed due to organic remains of oolites or carbonate rocks, as well as cavities and chambers in the skeletons of rock-forming organisms (foraminifera, gastropoda, corals, etc.), limestones with a small amount of clay, and terrigenous material. will be The pores between the particles of igneous rocks are called interparticle, oolite and interfaunal porosity - porosity in interformational organic residue - internally formed porosity.

Secondary porosity forms cracks, cavities, and sometimes intergranular pores. Cracks are formed as a result of lithological changes of rocks, as well as tectonic fluctuations in brittle rocks (dense limestones, dolomites, argillites, hard sandstones, etc.) and natural cracking.

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table-1.

Total porosity coefficient of sedimentary and igneous rocks

Rocks	Total porosity coefficient, %	
	Maximum and minimum indicators	Reliable indicator
Sedimentary rocks		
Sand	4-55	20-35
Sandstone	0-40	5-30
loess	40-55	-
Siltstone	1-40	3-25
Balchik	2-96	50-70
(province)	0-75	20-50
Gill	0-35	1,5-15
Limestone	40-55	40-50
Chalk	2-35	3-20
Dolomite	33-55	-
Dolomite flour		
Igneous rocks		
Gabbro	0,6-1,0	-
Basalt	0,6-19,0	-
Diabase	0,8-12,0	-
Diorite	0,25	0,25
Syenite	0,5-0,6	-
Granite	0,1-0,6	-

The concept of plasticity is used to evaluate the cracking resistance of rocks. The plasticity of rocks is that they retain their shape under the influence of strong mechanical stress without breaking the connection of their components. There is no

specific method that determines plasticity. L.A. Schreiner and several other authors accept the relationship between the work spent on elastic deformation and the work spent on elastic deformation as a unit of plastic. PMT*) - 2, PMT - 3 tool gauges are used for this type of work. [*pibor microtverdst (hardness determination tool)] With the help of these tools, a diamond pyramid with a base surface of 1-5mm² is inserted into the polished surface of the sample. The applied gain is measured in H/mm². The recorder records the deformation of the sample under the pressure applied to the diamond pyramid using curves.

There are open and closed cracks. This occurs due to mechanical compaction or filling of voids with secondary mineral rocks. In natural conditions, as a result of tectonic movements in rocks, a system of cracks is formed and spreads along a certain plane. Compression and shear discontinuity cracks are not included. One layer may have several fracture systems and different ages depending on their appearance. In practice, the collector properties of rocks are studied only in the part of open cracks. Usually, crack porosity is not larger than 2-3%, sometimes it can reach 6% (according to L.I. Rigen and D.S. Hafsū).

Pores are divided into macro pores (>1mm) and micro pores (<1mm). Micropores: divided into ultracapillary (1-0.5 mm), capillary (0.5-0.0002 mm) and subcapillary (<0.0002). Subcapillary porous rocks are almost impermeable to oil and gas.

Permeability of rocks. As a result of the pressure difference, the property of the rocks themselves to transfer liquids and gases is called their permeability. The unit of measurement is μm², Darcy. Conductivity is such a quantity that it refers to the conductivity when 1 cm³ of liquid with a viscosity of 0.001 Pa·s leaks through 1 cm³ at a distance of 1 cm at a pressure difference of 0.1 MPa in 1 second.

The permeability of rocks depends on the size of the particles. Most sedimentary deposits (sand, sandstone, limestone, dolomite) are more or less permeable. However, although clays and compacted limestones have porosity, they have relatively low permeability.

In this case, the fluid migration path consists of a collection of pores, cavities, and crack channels, and the higher the openness of the cracks, the higher the permeability. The amount of permeability is found by the coefficient of permeability C_{ot} . In the International System of Units (SI), the unit of conductivity is m².

The following relationship exists between the two units of measurement:

$$1 \text{ m}^2 = 10^{12} \text{ D} ; 1 \text{ D} = 10^{-12} \text{ m}^2 = 1 \text{ mkm}^2.$$

According to Darcyn's straight-line filtration law, rock permeability takes the following form:

$$K_{ot} = Q\mu L / \Delta P F$$

where: Q is the volume of liquid passed per time unit, m³; μ is the dynamic viscosity of the liquid, Pa·s; L is the length of the rock sample, m; P = R1 and R2 – pressure difference, MPa; F is the cross-sectional area of the sample, m².

table 2.

Evaluation classification of interparticle porosity of sandstone-siltstone oil and gas reservoirs

Collection class	The name of the genus	Effective porosity (Useful volume),%	Gas permeability $n \cdot 10^{-12} \text{ m}^2$	Collector conductivity
I	Sandstone is granular sandstone is fine-grained coarse-grained siltstone fine-grained siltstone	$>16,5$ >20 $>23,5$ >29	>1	Very high
II	Sandstone is medium-grained sandstone is fine-grained coarse-grained siltstone fine-grained siltstone	$15-16,5$ $18-25$ $21,5-23,5$ $26,5-29$	$>0,5-1$	High
III	Sandstone is medium-grained sandstone is fine-grained coarse-grained siltstone fine-grained siltstone	$11-15$ $14-18$ $16,8-21,5$ $20,5-26,5$	$0,1-0,5$	Average
IV	sandstone is medium-grained sandstone is fine-grained coarse-grained siltstone fine-grained siltstone	$5,8-11$ $8-14$ $10-16,8$ $12-20,5$	$0,01-0,1$	Low
V	Sandstone is medium-grained sandstone is fine-grained	$0,5-5,8$ $2-8$ $3,3-10$ $3,6-12$	$0,001-0,01$	Very Low

	coarse-grained siltstone fine-grained siltstone			
VI	sandstone is medium- grained sandstone is fine-grained coarse-grained siltstone fine-grained siltstone	0,5 2 3,3 3,6	<0,001	Usually not of industrial importance

So, gas and oil squeeze out a certain amount of water in the formation and take its place. However, during this process, while oil and gas occupy their places in the formation, a certain amount of water remains in the accumulation area - in the formation. Such waters are called residual waters.

Literature

1. Djabborov S.S. "Neft va gaz geologiyasi" fanidan o'quv uslubiy majmua 2024..
2. Oxford English for Careers: Oil and Gas 2 Student's Book. 2011.
3. Abidov A.A, Xolismatov I. va b. Neft va gaz uymlarini izlash va qidirish metodlari. Fan vatexnologivalar nashriyot-matbaa uyi, 2021. 308 b.
4. Toshmuxamedov B.T.-Umumiy geologiya/ -T.: Noshir. 2011
5. Холисматов И., Бурлутская И., Закиров Р. "Геология нефти и газа", Т.: ТГТУ. 2006г.
6. Суюнов, Д. Х. "Корпоратив бошқарув механизми: муаммо ва ечимлар. Монография." Т.: Академия 200 (2007).
7. Suyunov, D. H. "The main problems of corporate governance and ways to solve them." *EPRA International Journal of Economic Growth and Environmental Issues (EGEI)* ISSN (2021): 2321-6247.
8. Davletyarov, Azamat, Dilmurod Suyunov va omon T. Kenjaboev. "Iqtisodiyotni raqamlashtirish: tushunchalar, muammolar va amalga oshirish strategiyasi." *Innovatsiyalar, islohotlar va rivojlanishning spektr jurnali* 12 (2023): 209-218.
9. Davletyarov, Azamat, Dilmurod Suyunov va omon T. Kenjaboev. "IQTISODIYOTNI RAQAMLASHTIRISH: TUSHUNCHALAR, MUAMMOLAR VA AMALGA OSHIRISH STRATEGIYASI." *Innovatsiyalar, islohotlar va rivojlanishning spektr jurnali* 12 (2023): 209-218.
10. Суюнов, Д., and Элмурод Абдусатторович Хошимов. "Акциядорлик жамиятларида корпоратив бошқарув самарадорлигини баҳолашнинг методологик жиҳатлари." *Иқтисодиёт ва инновацион технологиялар* илмий электрон журнали 2 (2018).

11. Суюнов, Дилмурод Холмурадович, and Элмурод Абдусатторович Хошимов. "АКЦИЯДОРЛИК ЖАМИЯТЛАРИДА КОРПОРАТИВ БОШҚАРУВ САМАРАДОРЛИГИНИ БАҲОЛАШНИНГ МЕТОДОЛОГИК ЖИҲАТЛАРИ."
12. Суюнов, Дилмурод Холмурадович, and Элмурод Абдусатторович Хошимов. "АКЦИЯДОРЛИК ЖАМИЯТЛАРИДА КОРПОРАТИВ БОШҚАРУВ САМАРАДОРЛИГИНИ БАҲОЛАШНИНГ МЕТОДОЛОГИК ЖИҲАТЛАРИ."
13. Zakirov R.T. Neft va gaz geologiyasi. Darslik. Toshkent, ООО "Lesson Press"- 2022 - 243b