

2nd International Conference and Expo on

Oil & Gas

December 02-03, 2019 | Dubai, UAE

The influence of the quality of deep samples on the results of studies of the phase behavior of paraffins and formation oil asphaltenes**Stanislav Fedorovskiy**

GAZPROM NEFT Science & Technology Centre, Russia

The paper illustrates the influence of the quality of downhole samples on the results of studies of the phase behavior of paraffins and asphaltenes in reservoir oil. The results of studies of a conditionally representative sample of reservoir oil and deep samples taken under multiphase flow conditions (with different volumes of free gas, formation water and solid phase of asphaltenes, resins and paraffins in the sampler) were compared. For each sample, a set of PVT studies was carried out according to all required standards – PVT test, flash separation, determination of viscosity and density. Phase behavior of paraffins and asphaltenes was studied by methods of acoustic resonance (registration of the moment of phase transition), high pressure microscopy (determination of the number and geometric dimensions of solid phase particles), gravimetric and filtration methods (determination of the group composition of the solid phase). To prepare samples of oil with free gas in the chambers, a procedure was carried out to release free gas to the current bubble-point pressure. The results of the analysis revealed that the procedure of free gas release has little effect on the PVT-characteristics of reservoir fluid samples. However, it is not possible to study the phase behavior of paraffins and asphaltenes, since the deviation of different

parameters reaches 70% (the content of asphaltenes, resins and paraffins; paraffin saturation temperature; asphaltene saturation pressure, etc.) As a result, the sample of fluids with multiphase flow conditions, if it is impossible to use other methods, may be acceptable for a standard PVT-analysis. But it is not possible to study the phase behavior of paraffins and asphaltenes for such samples, since these studies are highly dependent on the quality of sampling.

Speaker Biography

Stanislav Fedorovskiy is the team leader of reservoir fluids studies of the GAZPROM NEFT Science and Technology Center. By academic professional education, he is a refinery engineer, but his career is all about studying reservoir fluids. He worked as an engineer in a PVT-laboratory of one of the research centers of PJSC Gazprom, where he mastered all the fundamental knowledge and skills in the culture of working with downhole and separator samples. Next, he became the head of the laboratory of physical and chemical analysis of degassed (wellhead) samples in the research center of JSC SibNIIINP, having gained experience of research and management of the team, he went to work directly at the GAZPROM NEFT Science and Technology Center, where for 4 years he has made the way from leading specialist to team leader. The specificity of their work lies in the absolute diversity of properties and phase states of the fluid – from heavy oil to supercritical fluids.

e: fedorovskiy.sa@gazpromneft-ntc.ru

 *Notes:*