conferenceseries.com

J Nanomed Nanotechnol 2017, 8:5 (Suppl)
DOI: 10.4172/2157-7439-C1-053

The role of nanoparticles in nanosystems implemented in the oil industry

Valeh Shamilov
SOCAR, Azerbaijan

Statement of the Problem: Nanotechnologies are widely used in the oil industry. For 12 years, the Department of nanotechnology of SOCAR engaged in the development and implementation of various nanosystems in oil industry: Drilling, to increase oil production, against sand flow and the sedimentation of salt, cleaning reservoir water. In the applied nanosystems are used different size of nanoparticles of different metals, different concentrations and various polymers. The experiments which are done over years show that, to get needed result it is not only important the nanoparticles used metal, but also, dimension of nanoparticles is the important factor.

Methodology & Theoretical Orientation: By the authors were prepared nanosystems with using water-soluble polymers and aluminum and copper metal nanoparticles with dimensions 20-40 nm, 40-60 nm and 60-80 nm. It was compared the rheological characteristics of various nanosystems used in the oil industry.

Findings: As it can be seen from Figure-1 that the surface tension reduces with a decrease in the dimension of the nanoparticles. This fact lets to use nanosystems as an agent for the displacement of oil. From the other part, it shows that in reduce of surface tension nanoparticles Al are more effective than the Cu nanoparticles.

Conclusion & Significance: The reduce dimension of nanoparticles, cause the start of chemical reaction and increase total area of nanoparticles and the influence area of nanoparticles. Nano systems prepared on the basis of water-soluble polymers and aluminum nanoparticles are more efficient than similar nanosystems copper nanoparticles in oil displacement as an agent.

Valeh.Shamilov@socar.az