COMPLEX-ACTION ADDITIVES FOR IMPROVEMENT OF RHEOLOGICAL PROPERTIES OF PARAFFIN OILS

Description
The methods of production of complex-action additives for improvement of rheological properties of paraffin oils have been developed. The additives are intended to prevent the formation of the deposits of asphalts, resins and paraffins (ARPD), to improve oil flow properties and to reduce corrosion processes in the oil tanks, pipelines and other oil field equipment.

In case of usage with paraffin and high-paraffin oils the inhibiting ability of the additive is 60—90% at the introduction in the amount of 0.03—0.05 wt.%. The additives lower the pour point of paraffin and high-paraffin oils by 15—20 °C with the consumption of the reactants of 300—500 g per 1 ton of oil. The additives possess antirust properties and provide a significant reduction of corrosion processes (about 90%) in walls and communications at the introduction in the amount of 0.03—0.05 wt.%. The additive introduction in the amount of 2—5 wt.% provides the flushing of oil field equipment from the ARPD.

Technical appraisal and economic benefits
The additives have been developed on the basis of products of oil refining and timber industry. The technology for production of the main product supposes the use of standard equipment and industrial domestic reagents. The compounding of main product and of the dissolvent base as well as the change of additive amount provide inhibiting, depressor, antirust and detergent properties of additives. The additives are harmless and environmentally friendly.

The pay-back period is short – 1 to 3 months.

Application areas
The complex-action additive can be recommended for application at the paraffin oil fields, for transportation of oil and petroleum products as well as for reservoir cleaning from ARP deposits.

Development stage
The complex-action additive has been tested at the Archinskoje oil field (the closed joint-stock company “Archinskoje” and the joint-stock company “Tomskaya Neft” in the Tomsk Oblast). The additive in the amount of 2000 kg (2—5 wt.% of oil) was pumped along the pipeline during 50 hours under the turbulent conditions. Under the action of the additive the linear pressure on the experimental pipeline section was decreased from 5.5 MPa to 1.3 MPa and the current well yield of 25 m³ per day was reproduced.

Patent situation

Commercial offers
Joint production; joint commercialization; license agreements for usage of patents and know-how; contracts.

Estimated cost
The cost of one ton of the additive is 30—40 thousand rubles.

Contacts
Dr. Ida A. Savinova, Scientific Secretary
Institute of Petroleum Chemistry, Siberian Branch of the Russian Academy of Sciences
3, Akademichesky Avenue, Tomsk, 634021, Russia
Phone: 7(382-2) 49-12-58
Fax: 7(382-2) 49-14-57
E-mail: canc@ipc.tsc.ru
http://www.ipc.tsc.ru