Challenge
Restore continuous production in an underperforming oil well producing intermittently.

Solution
VDA* Viscoelastic Diverting Acid for diversion and stimulation.

Results
More than 500% increase in oil production, which is now continuous.

Intermittent low production
A well in Timan-Pechora province, Russia, required intermittent production: 1 day producing, then 2 days on standby to restore pressure. Averaged oil production was about 62 bbl/d [14 m^3/d], considerably below expectations.

The producing interval was perforated in two sets covering about 12 m at 3,600 m [39 ft at 11,811 ft] depth. Bottomhole static temperature was 207 degF [97 degC], and the carbonate formation permeability was estimated at an average 19 mD.

Extensive core testing was performed to select the best acid system design without disintegrating the rock.

VDA fluid treatment
Extensive acid response tests on the formation core indicated the best results were achieved using VDA Viscoelastic Diverting Acid.

VDA fluid can be used in a wide temperature range, maintaining an ideal thin consistency while being pumped into the well. Upon acid spending, the fluid rapidly develops viscosity in situ and becomes self-diverting. The viscosity buildup serves as a barrier to reduce the development of dominating wormholes and allows movement of the fluids to stimulate the next untreated zones. VDA fluid is polymer-free and nondamaging; therefore, well cleanup is much easier.

VDA fluid was pumped in alternating stages with HCl to provide homogeneous coverage for the entire treated interval.

After the treatment, the well stabilized and is producing continuously. Production was boosted by more than 500%.

*Mark of Schlumberger