W065 heavy oil viscosity reducer, a zwitterionic surfactant, creates a water-external pseudo-emulsion when mixed with viscous crudes, reducing the apparent viscosity of the crude by several orders of magnitude. Unlike many viscosity reducers which are crude specific, W065 viscosity reducer has been shown to work with a wide variety of viscous crudes. In addition, it is compatible with brines and acid-based fluids.

Enhanced stimulation
W065 reducer is added to acids or chelant solutions to remove heavy oil films on the surface of fractures, fissures, or pore spaces in the formation, enabling the treating fluid to react with the formation. In alternative applications, adding W065 reducer to preflush fluids will aid flowback of the treating fluid after treatment. The product can also be used as the primary treatment fluid to clean the near-wellbore in producers to enable conversion to water injection wells in heavy crude reservoirs, the objective being to remove residual crude and improve effective permeability to water.

Remedial wellbore treatments
Solid deposits within the wellbore and covering downhole equipment can be removed effectively using W065 reducer in combination with acid stimulation fluids. W065 reducer is also used to improve the lift performance of ESPs in heavy crude reservoirs when the heavy crude plugs the ESP, which then overheats. With W065 reducer, the crude viscosity is reduced and the ESP operates normally, increasing production while reducing lifting costs and extending pump life.

Flow enhancement
Low concentrations of W065 reducer in brine, typically 0.1%, may be squeezed into the formation to induce the flow of heavy crude. Squeeze treatments using W065 reducer enable the potential of heavy oil reservoirs to be evaluated without the need for steam or additional surface equipment. Alternatively, it may be injected continuously downhole to facilitate production.