



Low-density Ceramic Proppant Boosts Utica Deep Gas Production

Contributed by CARBO

CONSOL Energy integrated CARBO’s KRYPTOSPHERE LD ultraconductive, low-density ceramic proppant in the completion program of a well targeting the Utica deep gas horizon underlying its existing Marcellus Shale field in Greene County, Pa. As the well design called for a true vertical depth of 13,500 ft with a 6,141-ft lateral, the excessive downhole stresses required a proppant with maximum conductive strength and the capacity to increase propped fracture volume and sustain maximum production.

Compared to intermediate and low-density sand and conventional ceramic and bauxite proppant, the mono-sized KRYPTOSPHERE LD is designed to deliver high conductivity across the entire range of low- to high-stress well conditions.

The technology is designed to create a fracture with significantly more uniform pore throats, thus increasing the space for maximum hydrocarbon flow. The smooth proppant surface minimizes erosivity to protect downhole equipment during high-rate hydraulic fracturing operations, while the low beta factor minimizes non-Darcy flow effects to reduce pressure drop across the fracture.

The deep Utica well, which was completed in 30 stages at a rate of four stages per day, flowed at an IP rate of more than 61.9 MMcf/d in a 24-hr period, which at the time made it one of the Utica’s highest producing gas wells. Furthermore, by employing this ceramic proppant, the operator eliminated the need for gel and crosslinked fluids, reducing overall completion costs.

Fairmount Santrol Holdings Inc. to move 5,630 rail cars into storage and delay delivery of previously ordered new rail cars as the capacity is not needed at this time. Hi-Crush has idled its Augusta, Ga., production facility and is only running its lowest cost plants.

With oil in the \$48 to \$51 range, proppant suppliers will work with operators to reduce costs while managing the size of rail car fleets. Operators already have moved away from more expensive products like ceramic or resin-coated proppants but are still using high-quality white sand. A few operators have moved to lower quality brown sand to reduce costs where they believe lower grade proppant will not hurt production.

As oil prices improve, demand for proppant will increase disproportionately due to the increase in proppant per well, which is now on average more than 3,000 tons per job. During the downturn, longer laterals and increased proppant per well partially offset the impact of DUCs and lower well completion counts across the U.S. The trend toward greater proppant loading per lateral foot is