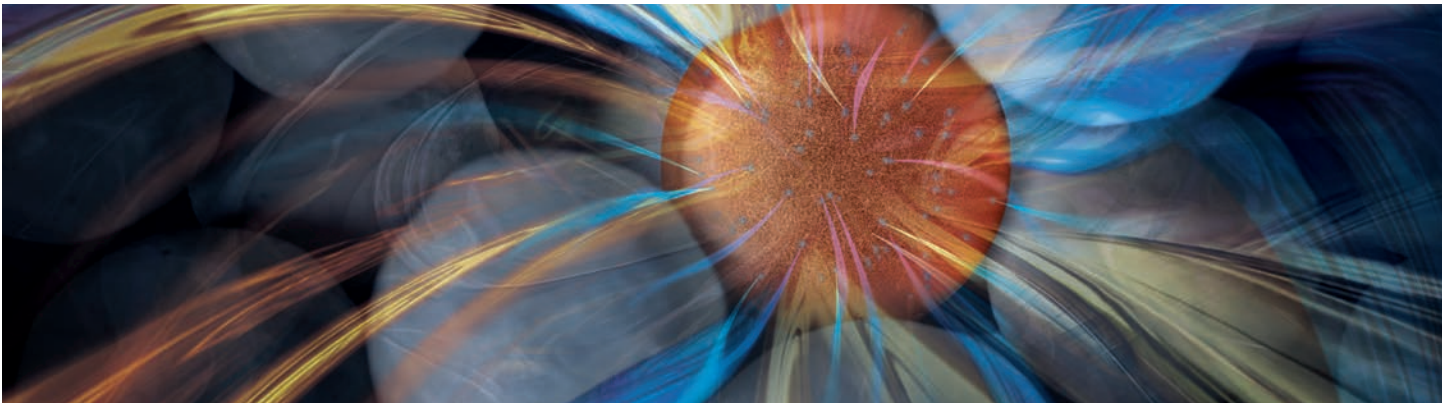


SCALEGUARD

Proppant-delivered scale-inhibiting technology



Maintain production long-term and increase recovery while lowering costs

SCALEGUARD® proppant-delivered scale-inhibiting technology is a porous ceramic proppant infused with scale-inhibiting chemicals and engineered with an innovative controlled release technology.

Impact of proppant delivery system



Long-term protection from a single application

SCALEGUARD technology is placed throughout the entire fracture as part of the standard fracturing process. A single treatment can be designed to safeguard the entire production system—from the fracture, through the wellbore, to the surface processing equipment—for the life of the well.

More efficient and effective than alternative treatments

Our unique SCALEGUARD technology outperform other production assurance treatments which can be inefficient, expensive and required to be repeated due to their short effective periods:

- Controlled release technology significantly lengthens treatment life and reduces initial inhibitor washout
- Engineered ceramic proppant that provides effective chemical delivery, high fracture conductivity and strength
- Liquid inhibitor added to frac fluid is short-lived and inefficient due to the large volume of chemicals required
- Periodic squeezes are short-lived and must be routinely repeated, incurring ongoing operational expenditure
- Other particulate chemical carriers added during frac can impair conductivity and can be short-lived



Production. Enhanced.



Delivery options

On site delivery compatible with box systems. We have the ability to pre-blend in sand before arrival on location.

Maintains inhibitors levels

Our unique controlled release technology ensures that scale-generating water is inhibited at a designed rate so that levels remain above the minimum inhibitor concentration (MIC) determined for each application.

Highly efficient scale inhibition

By placing the production assurance chemicals directly in the fracture where they are needed and avoiding chemical washout, SCALEGUARD technology provides effective, long-term protection while reducing chemical consumption and treatment costs.

Address multiple issues in a single treatment

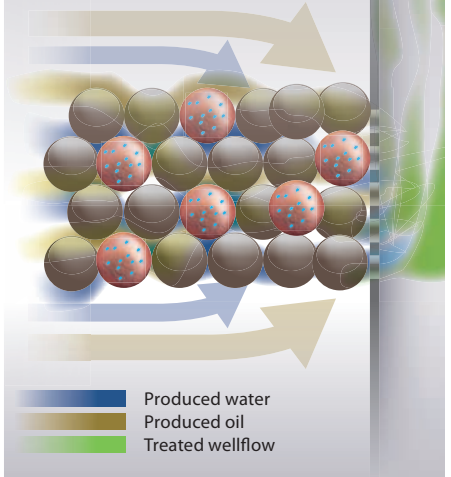
SCALEGUARD technology is part of our GUARD™ proppant-delivered production assurance technology portfolio. We are developing and commercializing technologies to deliver effective treatments to address common production issues.

By blending multiple GUARD technologies, we are able to create treatments to protect wells against any number of production issues from a single application.

Find out more at
carboceramics.com/guard

Scale-inhibiting chemicals infused within the proppant are released into the fracture only on contact with water to deliver highly efficient production assurance.

● Conventional proppant ● SCALEGUARD proppant



Our production assurance services include:

Engineered solutions

- Treatment design based off reservoir analysis and well productivity
- Active chemical and concentrations selection
- Base substrate proppant determination
- GUARD technology to proppant ratio

Wellsite services

- Precise blending of GUARD into base proppant
- Treatment supervision and documentation

Evaluation services

- Product longevity reporting
- Field sampling/wellsite testing
- Production fluids analysis
- Post-treatment laboratory evaluation and validation

Talk to CARBO to find out how we can help you enhance your production.

carboceramics.com

CARBO

Production. Enhanced.