

# Small but Mighty, 3M Proves Less is More with New Lightweight Additive

*New 3M Glass Bubbles HGS4K28 developed to improve oil and gas well productivity in depleted zones and weaker formations*

3M Advanced Materials Division debuted its newest 3M™ Glass Bubbles product currently under development today at the Society of Petroleum Engineers (SPE) Annual Technical Conference and Exhibition (booth #1751). The new HGS4K28 is a high-strength, low-density additive specially designed to afford greater density reduction capabilities than other lightweight additives under similar downhole conditions.

The use of HGS4K28 as a density reducing agent for completion, work-over and cement slurries offers the potential for improved well integrity, reduced non-productive time and increased well productivity when drilling in highly depleted zones and weaker formations, as it may help minimize or eliminate problems associated with fluid loss, lost circulation and formation damage.

“With the improvement in the strength-to-density ratio, our newest addition to the Glass Bubbles portfolio is ideal for low to moderate downhole pressures,” said Doug Rowen, business director of 3M Advanced Materials Division. “No other additive on the market today can match the value we provide with Glass Bubbles, as these hollow glass microspheres offer more strength at less volume, meaning you purchase less, ship less, inventory less, and reduce storage costs.”

With HGS4K28, coupled with our higher strength Glass Bubbles HGS19K46 which was launched globally earlier this year, 3M demonstrates that less can be more, even under pressure, as these products reduce costs by creating lighter cement slurries and drilling fluids while requiring less additive to achieve target density at pressure. Using less additive creates stronger, cured cement for better performance, and in drilling, completion and work-over fluids less additive gives customers more pressure control, as HGS4K28 and HGS19K46 help to achieve and maintain target density throughout the operation. Additionally, HGS4K28 and HGS19K46 allow customers to simplify their supply chain, inventory and operations to just a couple of grades of Glass Bubbles for a wide range of pressures.

Typical Properties (not for specification purposes)

Product	Glass Bubbles HGS4K28	Glass Bubbles HGS19K46
Strength	4,000 psi	19,000 psi
Density	.28 grams/cubic centimeter	.46 grams/cubic centimeter
Average Diameter	30 microns	20 microns

Glass Bubbles HGS4K28 and HGS19K46 complement 3M’s popular Glass Bubbles portfolio, which includes a variety of strengths, densities and sizes. 3M’s portfolio of hollow glass microspheres are used as an additive for a number of applications in the oil and gas industry, as well as automotive, aerospace, rubber and plastics, paints and coatings, construction materials, and electronics industries.

The technology behind Glass Bubbles, first introduced in 1968, has become widely accepted for its performance

and processing enhancements across a number of industries. As an engineered additive, 3M is able to ensure product and supply consistency around the world, when and where it's needed. 3M Glass Bubble production locations are in the US, Korea, France and Brazil, using the same quality standards and specifications worldwide.

Glass Bubbles HGS4K28 will be commercially available later this year, with sample and field trial quantities available for order beginning Oct. 1. For more information, visit [www.3M.com/CementingandDrilling](http://www.3M.com/CementingandDrilling).

#### About 3M

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