

Energy industry develops nontoxic fracking fluids

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The oil and gas industry is trying to ease environmental concerns by developing nontoxic fluids for the drilling process known as fracking, but it's not clear whether the new product will be widely embraced by drilling companies.

Houston-based energy giant Halliburton Inc. has developed a product called CleanStim, which uses only food-industry ingredients. Other companies have developed nontoxic fluids as well.

"Halliburton is in the business to provide solutions to our customers," said production manager Nicholas Gardiner. "Those solutions have to include ways to reduce the safety or environmental concerns that the public might have."

Environmental groups say they welcome the development but still have questions.

The chemicals in fracking fluids aren't the only environmental concern, said George Jugovic, president of PennFuture. He said there is also concern about the large volumes of naturally occurring but exceptionally salty [wastewater](#) and air pollution.

It's premature to say whether it will ever be feasible to have fluids for fracking that are totally nontoxic, said Scott Anderson, a senior adviser for the Environmental Defense Fund.

"But we are encouraged to some extent by recent industry efforts to at least reduce the toxicity," Anderson said.

Fracking, short for [hydraulic fracturing](#), has made it possible to tap into energy reserves across the U.S. but also has raised concerns about pollution, since large volumes of water, along with sand and [hazardous chemicals](#), are injected deep into the ground to free the oil and gas from rock.

Regulators contend that overall, water and air pollution problems are rare, but environmental groups and some scientists say there hasn't been enough research on those issues. The industry and many federal and [state officials](#) say the practice is safe when done properly, but faulty wells and accidents have caused problems.

Halliburton says CleanStim will provide "an extra margin of safety to people, animals and the environment in the unlikely occurrence of an incident" at a drilling site.

Gardiner said Halliburton has developed a chemistry-scoring system for the fluids, with lower scores being better. CleanStim has a zero score, he said, and is "relatively more expensive" than many traditional fracking fluids.

Both Jugovic and Anderson noted that one of the most highly publicized concerns about toxic fracking fluids hasn't really been an issue: the suggestion that they might migrate from thousands of feet underground, up to drinking water aquifers.

"Most people agree there are no confirmed cases so far" of fracking chemicals migrating up to drinking water, Anderson said. But he added that simple spills of fluid on the surface can cause problems.

"The most likely of exposure is not from the fracking itself. It is from spills before the fracking fluid is injected," Anderson said.

There also may be technical and cost issues that limit the acceptance of products such as CleanStim. There is tremendous variation in the type of shale rock in different parts of the country. For example, drillers use different [fluids](#) even within the same state, and the specific mix can play a large role in determining how productive a well is.

Gardiner wouldn't say how widely used CleanStim is. "The customers who do use it certainly like the material," he added.

Terry Engelder, a geologist at Penn State University, said he visited a well in that state last year that used just water, sand and three additives in the fracking fluid.

But Engelder added that "green" and "toxic" can be "soft words without real meaning." He noted that consumers, businesses and farms use vast quantities of chemicals that can contribute to pollution, from cleaners and soaps to fertilizers and pesticides. Yet all those compounds are routinely flushed down the drain, ending up in nearby rivers and streams.

"Eventually industry would like to end up with a mix of just water, sand, and food-grade additives," Engelder said of fracking. "Companies are learning to deal with fewer and fewer additives."

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