

# The Facts about Hydrofracing

After penetrating the shale, the rock must be hydraulically fractured, or “fraced”, to maximize the production of natural gas from Marcellus Shale. Fresh water, sand, and additives are injected into the well under high pressure to enhance fractures in the rock and free more gas.

These fractures start at the wellbore and extend as much as several hundred feet into the shale. Sand, a “propping agent”, is pumped into the fractures to keep the rock from closing when the pumping pressure is released, allowing the natural gas to migrate from the rock pores to the surface wellbore. Water and sand typically make up 99.5 percent of the liquid phase of fracturing fluids. The fracture fluid also contains additives such as:

- ✓ a friction reducer, similar to cooking oil, which aids in pumping the liquid and
- ✓ a bactericide, like Chlorine used in swimming pools and hot tubs to kill bacteria.

Additionally, the fracture fluid contains a micro emulsion, similar to those found in personal care products. This additive ensures coating of the formation and effective fracture fluid recovery.

The following is a list of the typical stimulation additives used on Marcellus Shale wells by Universal Well Services, Inc, an IOGA-NY member. The list also details each additives’ function and the typical amount used, or “loaded”.

**FRP-121** – a granulated anionic polyacrylamide based friction reducer used to reduce the friction pressure in surface lines and down the well casing during pumping operations. The typical loading for

FRP-121 is 3-5 gpt (gallons per thousand gallons) throughout the entire treatment. Commonly used in:

- ✓ Soft contact lens
- ✓ Water expandable children’s toys

**Flomax 70** – is a nonionic micro-emulsion surfactant used to increase the recovery of injected water into a well. It has a typical loading of 2 gpt. Flomax 70 can be run throughout the entire treatment or just during the first portion of the job. Commonly used in:

- ✓ Detergents
- ✓ Fabric softeners
- ✓ Laxatives

**EC6116A** – is a bromine based biocide used to quickly kill organisms encountered in oilfield operations. The typical loading for EC6116A is 0.25 gpt throughout the entire treatment. Commonly used in:

- ✓ Skin creams
- ✓ Toothpaste

**Scalehib 100** – is a liquid polymer based scale inhibitor used to control the precipitation of calcium carbonate, calcium sulfate, barium sulfate and strontium sulfate. The typical loading for Scalehib 100 is 55 gallons injected during the pad. Commonly used in:

- Cellophane
- Baby diapers

**For more information about natural gas exploration of the Marcellus Shale, please visit [www.marcellusfacts.com](http://www.marcellusfacts.com)**

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