

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/14/2018
Job End Date:	2/25/2018
State:	New Mexico
County:	Eddy
API Number:	30-015-43705-00-00
Operator Name:	CHISHOLM ENERGY OPERATING, LLC
Well Name and Number:	Cottonwood 29-32 FED COM WCB 4H
Latitude:	32.20228000
Longitude:	-104.31042800
Datum:	NAD83
Federal Well:	YES
Indian Well:	NO
True Vertical Depth:	9,082
Total Base Water Volume (gal):	8,495,483
Total Base Non Water Volume:	0



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Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Schlumberger	Acid Corrosion Inhibitor, Non-Emulsifying Agent, B536 Biocide C-Quat 1440, Acid, Friction Reducer, Scale Inhibitor, Chelating Agent, Propping Agent					

			Water (Including Mix Water Supplied by Client)*	7732-18-5		95.29784	
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Quartz, Crystalline silica	14808-60-7	94.18730	4.42884	
			Hydrochloric acid	7647-01-0	3.78526	0.17799	
			Distillates, petroleum, hydrotreated light	64742-47-8	0.62300	0.02929	
			Acrylamide/ammonium acrylate copolymer	26100-47-0	0.47467	0.02232	
			Ammonium chloride	12125-02-9	0.29664	0.01395	
			Alkyl(c12-16) dimethylbenzyl ammonium chloride	68424-85-1	0.21445	0.01008	
			Calcium magnesium sodium phosphate frit	65997-18-4	0.09336	0.00439	
			Ethoxylated oleic acid	9004-96-0	0.05933	0.00279	
			Sorbitan monooleate	1338-43-8	0.05933	0.00279	
			Tetrasodium ethylenediaminetetraacetate	64-02-8	0.02798	0.00132	
			Ethanol	64-17-5	0.02681	0.00126	
			Propan-2-ol	67-63-0	0.02630	0.00124	
			Sorbitol Tetraoleate	61723-83-9	0.01780	0.00084	
			Alcohols, C12-C16, ethoxylated	68551-12-2	0.01552	0.00073	
			Sodium sulfocyanate	540-72-7	0.01543	0.00073	
			2-Propenoic acid, ammonium salt	10604-69-0	0.01454	0.00068	
			Alcohols, C10-C16, ethoxylated	68002-97-1	0.01187	0.00056	
			Alcohols, C12-C14, ethoxylated	68439-50-9	0.00890	0.00042	
			C14 alpha olefin ethoxylate	84133-50-6	0.00890	0.00042	
			Fatty acid, tall-oil reaction products with acetophenone	68188-40-9	0.00793	0.00037	

			Polymer of fatty acid	Proprietary	0.00502	0.00024	
			Isodecanol w/6-7 Moles Ethylene Oxide	26183-52-8	0.00445	0.00021	
			Cinnamaldehyde	104-55-2	0.00290	0.00014	
			Alcohols, C11-14-iso, C13-rich, ethoxylated	78330-21-9	0.00268	0.00013	
			2-Propenamid (impurity)	79-06-1	0.00267	0.00013	
			Sodium Glycolate (impurity)	2836-32-0	0.00227	0.00011	
			Trisodium Ethylenediaminetetraacetate (impurity)	150-38-9	0.00076	0.00004	
			Amines, tallow alkyl, ethoxylated	61791-26-2	0.00085	0.00004	
			Disodium Ethylene Diamine Tetra Acetate (impurity)	139-33-3	0.00076	0.00004	
			Sodium hydroxide	1310-73-2	0.00092	0.00004	
			Dodecyl poly (oxyethylene) ether	9002-92-0	0.00036	0.00002	
			Trisodium nitrilotriacetate (impurity)	5064-31-3	0.00038	0.00002	
			Glycols, polyethylene, monotetradecyl ether	27306-79-2	0.00026	0.00001	

* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

*** If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)