

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	1/23/2020
Job End Date:	1/24/2020
State:	Texas
County:	Upton
API Number:	42-461-38786-00-00
Operator Name:	Apache Corporation
Well Name and Number:	University 4-30 #1
Latitude:	31.14616400
Longitude:	-101.77688300
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	10,100
Total Base Water Volume (gal):	303,682
Total Base Non Water Volume:	25,388



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	Operator	Base Carrier Fluid					
			Water	7732-18-5	100.00000	86.26886	
Sand	Multiple Suppliers	Proppants					
			Silicon Dioxide	14808-60-7	100.00000	6.84440	
CS-100	Multiple Suppliers	Clay Control / Stabilizers					
			Potassium Chloride	7447-40-7	100.00000	4.15555	
15% Hydrochloric Acid	Multiple Suppliers	Scale Dissolver					
			Water	7732-18-5	85.00000	2.07640	
			36% Hydrochloric Acid	7647-01-0	15.00000	0.36642	
MCS-376	Ace Completions	Surfactants					
			Water	7732-18-5	75.00000	0.06839	
			Proprietary	Proprietary	15.00000	0.01368	Proprietary Data
			Ethylene oxide/propylene Oxide co-polymer	9003-11-6	10.00000	0.00912	
			Coconut diethanolamide	68603-42-9	8.00000	0.00730	
			Alcohol	68609-68-7	5.00000	0.00456	
			Isotridecanol, ethoxylated	9043-30-5	5.00000	0.00456	

			Poly(oxy-01,2-ethanediyl), alpha hexyl-omega-hydroxy-	31726-34-8	5.00000	0.00456	
			Diethanolamine	111-42-2	1.00000	0.00091	
			Solvent Naptha(Petroleum), Heavy	64742-94-5	1.00000	0.00091	
FR-620	SNF	Friction Reducers					
			Water	7732-18-5	35.00000	0.03489	Not Listed on SDS
			Poly(Acrylamide and Adam Methyl Chloride)	69418-26-4	31.00000	0.03090	Not Listed on SDS
			Distillates(petroleum), Hydrotreated light	64742-47-8	30.00000	0.02990	
			Alcohols, C11-14-iso-, C13-rich, ethoxylated	78330-21-9	5.00000	0.00498	
			Sorbitan Monooleate	1338-43-8	3.00000	0.00299	Not Listed on SDS
CS-135	Chemplex/Solvay	Clay Control / Stabilizers					
			Water	7732-18-5	60.00000	0.03428	Not Listed on SDS
			Methanamine, N-methyl-,polymer with (chloromethyl) oxirane	25988-97-0	60.00000	0.03428	
GB-210	Ace Completions	Gel Breakers/Delayed Breakers					
			Water	7732-18-5	77.00000	0.02161	
			Sodium Hypochlorite	7681-52-9	12.50000	0.00351	
			Sodium Chloride	7647-14-5	10.00000	0.00281	
			Sodium Hydroxide	1310-73-2	2.00000	0.00056	
FE-360	Chemplex/Solvay	Iron Controller / Reducers					
			2-Mercaptoethanol	60-24-2	100.00000	0.00750	
			Water	7732-18-5	7.00000	0.00052	
			Cupric Chloride Dihydrate	10125-13-0	5.00000	0.00037	
			Aqua Ammonia	1336-21-6	5.00000	0.00037	
			Potassium Iodide	7681-11-0	1.00000	0.00007	
I-123	Finoric LLC	Acid Corrosion Inhibitors					
			Ethylene Glycol	107-21-1	40.00000	0.00192	
			N,N-Dimethylformamide	68-12-2	20.00000	0.00096	
			Tar based, quinoline derived, benzyl chloride-quaternized	72480-70-7	10.00000	0.00048	
			Cinnamaldehyde	104-55-2	10.00000	0.00048	
			2-Butoxyethanol	111-76-2	10.00000	0.00048	
			Ethoxylated Nonylphenol	68412-54-4	10.00000	0.00048	
			1-Decanol	112-30-1	10.00000	0.00048	
			Isopropyl Alcohol	67-63-0	2.50000	0.00012	
			1-Octanol	111-87-5	2.50000	0.00012	
			Triethyl Phosphate	78-40-0	2.50000	0.00012	

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

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

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)