

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/17/2017
Job End Date:	5/26/2017
State:	Texas
County:	Martin
API Number:	42-317-40597-00-00
Operator Name:	QEP Energy Company
Well Name and Number:	University 7-2730 S 08SC
Latitude:	32.39343500
Longitude:	-102.17814200
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	9,514
Total Base Water Volume (gal):	9,092,372
Total Base Non Water Volume:	0



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
Fresh Water	Operator	Base Fluid					
			Water	7732-18-5	100.00000	86.81749	Density = 8.330
FDP-M1075-12	Halliburton	Scale Inhibitor					
				Listed Below			

FE-1A ACIDIZING COMPOSITION	Halliburton	Additive					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
FDP-S1226-15	Halliburton	Surfactant					
				Listed Below			
CRC-30/50	Halliburton	Proppant					
				Listed Below			
FDP-S1258-16	Halliburton	Surfactant					
				Listed Below			
BA-20 BUFFERING AGENT	Halliburton	Buffer					
				Listed Below			
OptiKleen-WF (TM)	Halliburton	Concentrate					
				Listed Below			
SAND- PREMIUM WHITE-30/50	Halliburton	Proppant					
				Listed Below			

OPTIFLO-III DELAYED RELEASE BREAKER	Halliburton	Breaker					
				Listed Below			
MO-67	Halliburton	pH Control Additive					
				Listed Below			
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor					
				Listed Below			
N-zyme3 breaker	Halliburton	Additive					
				Listed Below			
SAND-COMMON WHITE-100 MESH	Halliburton	Proppant					
				Listed Below			
DCA-23003	Halliburton	Friction Reducer					
				Listed Below			
HYDROCHLORI C ACID	Halliburton	Solvent					
				Listed Below			
FDP-S1176-15	Halliburton	Friction Reducer					
				Listed Below			

MC B-8614	Halliburton	Biocide					
				Listed Below			
BC-140 X2	Halliburton	Initiator					
				Listed Below			
CLAYFIX 3	Halliburton	Additive					
				Listed Below			

Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.

			Crystalline silica, quartz	14808-60-7	100.00000	10.88062	
			Water	7732-18-5	100.00000	1.19642	
			Aluminum oxide	1344-28-1	100.00000	0.82769	
			Hydrochloric acid	7647-01-0	60.00000	0.67538	
			Iron oxide	1309-37-1	30.00000	0.24831	
			Guar gum	9000-30-0	100.00000	0.06752	
			Formaldehyde, polymer with 4-nonylphenol and phenol	40404-63-5	5.00000	0.04138	
			Crystalline silica, cristobalite	14464-46-1	5.00000	0.04138	
			Formaldehyde-4,4'-isopropylidene diphenol	25085-75-0	5.00000	0.04138	
			Titanium dioxide	13463-67-7	5.00000	0.04138	
			Mullite	1302-93-8	5.00000	0.04138	
			Ethanol	64-17-5	30.00000	0.03701	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.02340	
			Polyacrylate	Proprietary	30.00000	0.01721	
			Monoethanolamine borate	26038-87-9	100.00000	0.01576	
			Sodium perborate tetrahydrate	10486-00-7	100.00000	0.01561	

			Ethoxylated alcohols	Proprietary	30.00000	0.01310	
			Ethoxylated fatty acids	Proprietary	10.00000	0.01233	
			Fatty nitrogen derived amides	Proprietary	10.00000	0.01233	
			Sodium chloride	7647-14-5	30.00000	0.00879	
			Methanol	67-56-1	60.00000	0.00770	
			Butyl alcohol	71-36-3	5.00000	0.00617	
			Ethylene glycol	107-21-1	30.00000	0.00473	
			Ammonium persulfate	7727-54-0	100.00000	0.00459	
			Acetic acid	64-19-7	60.00000	0.00445	
			Acetic anhydride	108-24-7	100.00000	0.00308	
			Ammonium chloride	12125-02-9	5.00000	0.00287	
			Castor oil, ethoxylated	61791-12-6	5.00000	0.00287	
			9-Octadecenamide, n,n-bis-2(hydroxy-ethyl)-,(Z)	93-83-4	5.00000	0.00287	
			Sobitan, mono-9-octadecenoate, (Z)	1338-43-8	5.00000	0.00287	
			Sodium hydroxide	1310-73-2	30.00000	0.00253	
			Cured acrylic resin	Proprietary	30.00000	0.00138	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Naphthalene	91-20-3	1.00000	0.00123	
			Ethoxlated branched C13 alcohol	78330-21-9	5.00000	0.00103	
			Inorganic salt	Proprietary	5.00000	0.00097	
			Magnesium chloride hexahydrate	7791-18-6	5.00000	0.00097	
			Phenol	108-95-2	0.10000	0.00083	
			Fatty acids, tall oil	Proprietary	30.00000	0.00076	
			Reaction product of acetophenone, formaldehyde, thiourea and oleic acid in dimethyl formamide	68527-49-1	30.00000	0.00076	
			Ethylene Glycol	107-21-1	60.00000	0.00032	

			Olefins	Proprietary	5.00000	0.00031	
			Glutaraldehyde	111-30-8	30.00000	0.00030	
			Alcohols,C12-16,ethoxylated	66455-14-9	30.00000	0.00029	
			Propargyl alcohol	107-19-7	10.00000	0.00025	
			Calcium chloride	10043-52-4	1.00000	0.00019	
			Telomer	Proprietary	10.00000	0.00005	
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00005	
			Hemicellulase enzyme	9012-54-8	5.00000	0.00002	
			2,7-Naphthalenedisulfonic acid, 3-hydroxy-4-[(4-sulfor-1-naphthalenyl)azo] -, trisodium salt	915-67-3	0.10000	0.00002	
			Sodium polyacrylate	9003-04-7	1.00000	0.00001	
			Phosphoric acid	7664-38-2	0.10000	0.00000	
			Acrylic acid	79-10-7	0.01000	0.00000	

* 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)