

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	11/7/2017
Job End Date:	11/29/2017
State:	Texas
County:	Upton
API Number:	42-461-40629-00-00
Operator Name:	Hunt Oil Company
Well Name and Number:	UNIVERSITY 3-35 105HB
Latitude:	31.20113222
Longitude:	-101.84630417
Datum:	WGS84
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	8,407
Total Base Water Volume (gal):	17,028,756
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	89.71966	Density = 8.340
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.71260	

Cla-Web(TM)	Halliburton	Additive					
				Listed Below			
SP BREAKER	Halliburton	Breaker					
				Listed Below			
BE-9W	Halliburton	Biocide					
				Listed Below			
Scalechek(R) SCP-2 Scale Inhibitor	Halliburton	Scale Preventer					
				Listed Below			
OptiKleen-WF (TM)	Halliburton	Concentrate					
				Listed Below			
MO-67	Halliburton	pH Control Additive					
				Listed Below			
CL-31 CROSSLINKER	Halliburton	Crosslinker					
				Listed Below			
CL-28M CROSSLINKER	Halliburton	Crosslinker					
				Listed Below			
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor					

				Listed Below			
FDP-S1204S-16	Halliburton	Friction Reducer					
				Listed Below			
FDP-S1225-15	Halliburton	Surfactant					
				Listed Below			
BA-20 BUFFERING AGENT	Halliburton	Buffer					
				Listed Below			
HYDROCHLORIC ACID	Halliburton	Solvent					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
SAND-COMMON WHITE-100 MESH, SSA-2, BULK (100003676)	Halliburton	Proppant					
				Listed Below			
SAND- PREMIUM WHITE-40/70, BULK	Halliburton	Proppant					
				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	9.55393	
			Hydrochloric acid	7647-01-0	60.00000	0.29538	
			Alcohols, C12-13, ethoxylated	66455-14-9	30.00000	0.04130	
			Guar gum	9000-30-0	100.00000	0.02798	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.02764	
			Copolymer of acrylamide and sodium acrylate	25085-02-3	30.00000	0.02764	
			Sodium chloride	7647-14-5	10.00000	0.00996	
			Propylene glycol	57-55-6	60.00000	0.00947	
			Hydroxyalkylammonium chloride	Proprietary	60.00000	0.00896	
			Glycerine	56-81-5	5.00000	0.00688	
			Alcohols, C12-16, ethoxylated	68551-12-2	5.00000	0.00688	
			Glassy calcium magnesium phosphate	65997-17-3	100.00000	0.00509	
			Sorbitan monooleate polyoxyethylene derivative	9005-65-6	5.00000	0.00461	
			Sodium perborate tetrahydrate	10486-00-7	100.00000	0.00261	
			Methanol	67-56-1	60.00000	0.00229	
			Tributyl tetradecyl phosphonium chloride	81741-28-8	10.00000	0.00158	
			Ammonium acetate	631-61-8	100.00000	0.00153	
			Fatty acids, tall oil	Proprietary	30.00000	0.00115	
			Modified thiourea polymer	Proprietary	30.00000	0.00115	
			Ethoxylated alcohols	Proprietary	30.00000	0.00115	
			Ethoxylated fatty acid ester	Proprietary	1.00000	0.00092	
			Ethoxylated fatty acid	Proprietary	1.00000	0.00092	
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	1.00000	0.00092	

			Quaternary amine	Proprietary	5.00000	0.00091	
			Acetic acid	64-19-7	30.00000	0.00060	
			Sodium persulfate	7775-27-1	100.00000	0.00049	
			Olefins	Proprietary	5.00000	0.00046	
			Propargyl alcohol	107-19-7	10.00000	0.00038	
			Borate salts	Proprietary	60.00000	0.00034	
			Potassium metaborate	13709-94-9	60.00000	0.00013	
			Poly(oxy-1,2-ethanediyl), alpha-(dinonylphenyl)-, omega-hydroxy-	9014-93-1	0.10000	0.00009	
			Polyethylene glycol	25322-68-3	0.10000	0.00009	
			Sodium hydroxide	1310-73-2	30.00000	0.00005	
			Amine salts	Proprietary	0.10000	0.00003	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Inorganic mineral	Proprietary	5.00000	0.00003	
			Ethylene oxide	75-21-8	0.01000	0.00001	
			Potassium hydroxide	1310-58-3	5.00000	0.00001	
			Polymer	Proprietary	1.00000	0.00001	
			Sodium sulfate	7757-82-6	0.10000	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)