

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/14/2019
Job End Date:	4/28/2019
State:	Texas
County:	Winkler
API Number:	42-495-34183-00-00
Operator Name:	Shell Oil Company affiliate
Well Name and Number:	University 20 PW 2503H
Latitude:	31.69075000
Longitude:	-103.26428333
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	11,852
Total Base Water Volume (gal):	6,104,013
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
Water	Shell	Carrier/Base Fluid	Water	7732-18-5	100.00000	81.01859	None
100 Mesh	Keane	Proppant	Crystalline Silica (quartz)	14808-60-7	100.00000	18.75001	None
KFR-40	Rockwater	Friction Reducer	Distillates (Petroleum), Hydrotreated Light	64742-47-8	30.00000	0.03612	None
			Proprietary Polymer	Proprietary	30.00000	0.03612	None
			Proprietary Surfactant Blend	Proprietary	5.00000	0.00602	None
15% HCL Acid	CNR	Acid	Hydrochloric Acid	7647-01-0	100.00000	0.07588	None
Bioban 5:10	Keane	Biocide	other components below reportable levels	Proprietary	90.00000	0.01540	None
			glutaral	111-30-8	10.00000	0.00171	None
			Quaternary ammonium compounds, Benzyl-C12-16-alkyldimethyl, Chlorides	68424-85-1	10.00000	0.00171	None
			ethanol	64-17-5	3.00000	0.00051	None
KSI-24	Keane	Scale Inhibitor					

			Polyphosphonic Acid	Proprietary	20.00000	0.00348	None
			Amine Phosphonate	Proprietary	20.00000	0.00348	None
			Proprietary Amine	Proprietary	5.00000	0.00087	None
			Hydrochloric Acid	7647-01-0	1.00000	0.00017	None
AIC100D	Nalco Champion	Iron Control					
			Citric Acid	77-92-9	100.00000	0.00046	None
Product 6191	Nalco Champion	Surfactant					
			Branched Alcohol Oxyalkylate	Proprietary	100.00000	0.00007	None
X-Corr LT	Nalco Champion	Corrosion Inhibitor					
			Isopropyl Alcohol	67-63-0	60.00000	0.00004	None
			Fatty Alcohol Ethoxylate	Proprietary	30.00000	0.00002	None
			Ethoxylated Alcohol	Proprietary	10.00000	0.00001	None
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.							
Other Chemical(s)	Listed Above	See Trade Name(s) List					
			Proprietary Polymer	Proprietary	30.00000	0.03612	
			Proprietary Surfactant Blend	Proprietary	5.00000	0.00602	
			Amine Phosphonate	Proprietary	20.00000	0.00348	
			Quaternary ammonium compounds, Benzyl-C12-16- alkyldimethyl, Chlorides	68424-85-1	10.00000	0.00171	
			glutaral	111-30-8	10.00000	0.00171	
			Proprietary Amine	Proprietary	5.00000	0.00087	
			ethanol	64-17-5	3.00000	0.00051	
			Hydrochloric Acid	7647-01-0	1.00000	0.00017	
			Fatty Alcohol Ethoxylate	Proprietary	30.00000	0.00002	
			Ethoxylated Alcohol	Proprietary	10.00000	0.00001	

* 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)