

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/22/2018
Job End Date:	9/5/2018
State:	Texas
County:	Winkler
API Number:	42-495-33805-00-00
Operator Name:	Energen Resources Corporation
Well Name and Number:	UL 20 Stripes 38-47 602H
Latitude:	31.67083400
Longitude:	-103.28373900
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	11,639
Total Base Water Volume (gal):	22,009,596
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	Operator	Carrier/Base Fluid	Water	7732-18-5	100.00000	90.05428	None
Sand (Proppant)	TSS	Proppant	Silica Substrate	14808-60-7	100.00000	9.28592	None
HiFlow 5	DCS	Friction Reducer	Acrylamide P/W Acrylic Adid Ammonium Salt	Proprietary	40.00000	0.04723	None
			Petroleum Distillate	64742-47-8	20.00000	0.02362	None
			Dewaxed Heavy Paraffinic	Proprietary	10.00000	0.01181	None
			Hydrotreated Heavy Paraffinic	Proprietary	10.00000	0.01181	None
			Ammonium Chloride	Proprietary	2.00000	0.00236	None
15% HCL	Cooper Natural Resources	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.06638	None
ScaleBlok 10	DCS	Scale Inhibitor	Acrylic Acid Phosphonate Polymer	Proprietary	10.00000	0.00282	None
			Acrylic Acid Copolymer	Proprietary	10.00000	0.00282	None
			Phosphonic Acid Derivatives	Proprietary	10.00000	0.00282	None

			Potassium Hydroxide	Proprietary	5.00000	0.00141	None
MBC 12.3	Nashville Chemical	Biocide					
			Glutaraldehyde	111-30-8	12.40000	0.00572	None
			Didecyl dimethyl benzyl ammonium chloride (C 12-16)	7173-51-5	2.00000	0.00092	None
			Alkyl dimethyl benzyl ammonium chloride (C 12-16)	68424-85-1	1.30000	0.00060	None
			Ethanol	64-17-5	1.00000	0.00046	None
Scalesorb 3	Baker Hughes	Scale Inhibitor					
			Diatomaceous earth, calcined	91053-39-3	80.00000	0.00279	None
			Amino alkyl phosphonic acid	6419-19-8	30.00000	0.00105	None
			Phosphonic Acid	13598-36-2	1.00000	0.00003	None
			Crystalline silica: Quartz (SiO2)	14808-60-7	1.00000	0.00003	None
EnviroSurf 6	DCS	Surfactant					
			Alpha-Sulfo-w-(dodecyloxy)-poly(oxyethane-1,2-diyl), sodium salt	9004-82-4	8.00000	0.00170	None
			Alcohols, C12-C16, ethoxylated	68551-12-2	6.00000	0.00128	None
			Quaternary Ammonium Salt	107-64-2	3.00000	0.00064	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					
			Petroleum Distillate	64742-47-8	20.00000	0.02362	
			Hydrotreated Heavy Paraffinic	Proprietary	10.00000	0.01181	
			Dewaxed Heavy Paraffinic	Proprietary	10.00000	0.01181	
			Phosphonic Acid Derivatives	Proprietary	10.00000	0.00282	
			Acrylic Acid Phosphonate Polymer	Proprietary	10.00000	0.00282	
			Ammonium Chloride	Proprietary	2.00000	0.00236	
			Potassium Hydroxide	Proprietary	5.00000	0.00141	
			Alcohols, C12-C16, ethoxylated	68551-12-2	6.00000	0.00128	
			Amino alkyl phosphonic acid	6419-19-8	30.00000	0.00105	
			Didecyl dimethyl benzyl ammonium chloride (C 12-16)	7173-51-5	2.00000	0.00092	
			Quaternary Ammonium Salt	107-64-2	3.00000	0.00064	
			Alkyl dimethyl benzyl ammonium chloride (C 12-16)	68424-85-1	1.30000	0.00060	
			Ethanol	64-17-5	1.00000	0.00046	
			Crystalline silica: Quartz (SiO2)	14808-60-7	1.00000	0.00003	
			Phosphonic Acid	13598-36-2	1.00000	0.00003	

* 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)