

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	1/29/2017
Job End Date:	2/20/2017
State:	Texas
County:	Reagan
API Number:	42-383-39731-00-00
Operator Name:	EP Energy
Well Name and Number:	UNIVERSITY CENTRAL 08-10 BH
Latitude:	31.19430600
Longitude:	-101.62712400
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,742
Total Base Water Volume (gal):	18,649,218
Total Base Non Water Volume:	586,719



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	Supplied by Operator	Base Fluid					
			Water	7732-18-5	100.00000	85.81674	
Other Chemical (s)	Listed Above	See Trade Name (s) List					
			Water	7732-18-5	60.00000	0.02649	

			Water	7732-18-5	30.00000	0.00219	
			Water	7732-18-5	75.00000	0.07671	
			Water	7732-18-5	80.00000	0.03228	
			Water	7732-18-5	40.00000	0.00890	
			Water	7732-18-5	85.00000	2.22838	
			Water	7732-18-5	75.00000	0.00655	
			Water	7732-18-5	80.00000	0.03334	
10.1%-15.0% HCL	FTSI	Acid					
				Listed Below			
FRW-200	FTSI	Friction reducer					
				Listed Below			
CI-150	FTSI	Acid Corrosion Inhibitor					
				Listed Below			
SHALE SURF 1000W	FTSI	Surfactant					
				Listed Below			
NE-100W	FTSI	Non-emulsifier					
				Listed Below			

100 Mesh Sand	FTSI	Proppant					
				Listed Below			
40/70 White	FTSI	Proppant					
				Listed Below			
FE-100L	FTSI	Scale Inhibitor					
				Listed Below			
FRW-1050	FTSI	Friction Reduction Agent					
				Listed Below			
KCLS-5	FTSI	Semi-permanent Clay Stabilizer					
				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Silica, Quartz	14808-60-7	100.00000	8.45318	
			Silica, Quartz	14808-60-7	100.00000	2.84172	
			Hydrogen Chloride	7647-01-0	15.00000	0.39324	
			Choline Chloride	67-48-1	20.00000	0.02045	
			Trade Secret	Proprietary	15.00000	0.01534	
			Copolymer of acrylamide and sodium acrylate	25987-30-8	33.00000	0.01457	
			Petroleum distillate hydrotreated light	64742-47-8	30.00000	0.01325	
			Polyacrylamide	Proprietary	50.00000	0.01113	
			Acrylamide P/W acrylic acid, ammonium salt	26100-47-0	25.00000	0.01104	

			Ethanaminium, N,N,N-trimethyl-2-[(1-oxo-2-propen-1-yl)oxy]-, chloride (1:1), polymer with 2-propenamide	69418-26-4	35.00000	0.00779	
			Isoparaffinic Solvent	64742-47-8	30.00000	0.00668	
			Methanol	67-56-1	15.00000	0.00625	
			Ammonium Chloride	12125-02-9	12.00000	0.00530	
			Ethoxylated alcohol	Proprietary	13.00000	0.00525	
			Methanol	67-56-1	60.00000	0.00438	
			Isopropanol	67-63-0	60.00000	0.00438	
			Citric Acid	77-92-9	50.00000	0.00437	
			2-Butoxyethanol	111-76-2	10.00000	0.00417	
			2-Propanol	67-63-0	10.00000	0.00417	
			Surfactant	Proprietary	7.00000	0.00309	
			Hydrotreated heavy paraffinic	64742-54-7	5.00000	0.00221	
			Sorbitan, monooctadecanoate, poly(oxy-1,2-ethanediyl) Sorbitan, monooctadecanoate, poly(oxy-1,2-ethanediyl) derivs.	9005-67-8	5.00000	0.00221	
			Fatty amino compound salt	Proprietary	30.00000	0.00219	
			Aromatic Ketone compound	Proprietary	30.00000	0.00219	
			Aromatic aldehyde	Proprietary	30.00000	0.00219	
			Ethoxylated fatty alcohol	Proprietary	30.00000	0.00219	
			Ethylene Glycol	107-21-1	30.00000	0.00219	
			Organic amine resin salt	Proprietary	30.00000	0.00219	
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00208	
			Methanol	67-56-1	5.00000	0.00202	
			2-Butoxyethanol	111-76-2	5.00000	0.00202	
			2-Propanol	67-63-0	5.00000	0.00202	

			Alcohols (C12-C16), ethoxylated	68551-12-2	4.00000	0.00177	
			Alcohols (C10-C16), ethoxylated	68002-97-1	4.00000	0.00177	
			Alcohols (C12-C14), ethoxylated	68439-50-9	4.00000	0.00177	
			Ethoxylated Sorbitan Monooleate	9005-65-6	6.00000	0.00134	
			Polyethylene glycol monooleate	9004-96-0	3.00000	0.00132	
			Sorbitan Monooleate	1338-43-8	3.00000	0.00132	
			Alcohols, ethoxylated	68439-50-9	5.00000	0.00111	
			Alcohols, ethoxylated	68002-97-1	5.00000	0.00111	
			Citric Acid	77-92-9	5.00000	0.00111	
			Alcohols, ethoxylated	68551-12-2	5.00000	0.00111	
			Sorbitol Tetraoleate	61723-83-9	2.00000	0.00088	
			Ethylene glycol	107-21-1	10.00000	0.00087	
			Quaternary ammonium compound	Proprietary	10.00000	0.00073	
			Ethoxylated Alcohols	Proprietary	10.00000	0.00073	
			Dimethylformamide	68-12-2	10.00000	0.00073	
			Alkylene Oxide Block Polymer	Proprietary	10.00000	0.00073	
			Polyalkylene glycol	Proprietary	10.00000	0.00073	
			Tridecyl Alcohol Ethoxylate	78330-21-9	3.00000	0.00067	
			Dewaxed heavy paraffinic	64742-65-0	1.50000	0.00066	
			Oleic Acid Diethanolamide	93-83-4	1.50000	0.00066	
			Alkyloxypolyethyleneoxy ethanol	84133-50-6	1.00000	0.00044	
			d-Limonene	5989-27-5	1.00000	0.00040	
			Acetic Acid	64-19-7	5.00000	0.00036	
			Acetophenone	98-86-2	5.00000	0.00036	
			Oxyalkylated Fatty Amine	Proprietary	5.00000	0.00036	

			Formaldehyde	50-00-0	5.00000	0.00036	
			Oxyalkylated Alcohol	Proprietary	5.00000	0.00036	
			Ammonium Chloride	12125-02-9	1.00000	0.00022	
			Ammonium Acrylate	10604-69-0	0.50000	0.00022	
			Isopropanol	67-63-0	0.30000	0.00013	
			Diethylene glycol	111-46-6	1.00000	0.00007	
			Acrylamide	79-06-1	0.10000	0.00004	
			2-Propenamide	79-06-1	0.10000	0.00002	
			Aliphatic alcohol	Proprietary	0.10000	0.00001	
			Fatty Acid	Proprietary	0.10000	0.00001	
			Fatty Acid Salt	Proprietary	0.10000	0.00001	
			Aromatic Aldehyde	Proprietary			

* 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)