

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/13/2015
Job End Date:	2/20/2015
State:	Texas
County:	Reagan
API Number:	42-383-38440-00-00
Operator Name:	American Energy Permian Basin
Well Name and Number:	University 09 #817H
Longitude:	-101.59140000
Latitude:	31.28753100
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	8,400
Total Base Water Volume (gal):	5,848,626
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					
			Water	7732-18-5	100.00000	0.87300	
40/70 White	FTSI	proppant					
			Silica, Quartz	14808-60-7	100.00000	0.09933	
100 Mesh Sand	FTSI	proppant					
			Silica, Quartz	14808-60-7	100.00000	0.01682	
Hydrochloric Acid (HCl)	FTSI	Acid					
			Water	7732-18-5	63.00000	0.00608	
			Hydrogen Chloride	7647-01-0	37.00000	0.00357	
FRW-200	FTSI	Friction reducer					
			Water	7732-18-5	48.00000	0.00040	
			Copolymer of acrylamide and sodium acrylate	25987-30-8	33.00000	0.00028	
			Petroleum distillate hydrotreated light	64742-47-8	26.00000	0.00022	
			Acrylamide P/W acrylic acid, ammonium salt	26100-47-0	25.00000	0.00021	
			Ammonium Chloride	12125-02-9	12.00000	0.00010	
			Surfactant	Proprietary	7.00000	0.00006	
			Hydrotreated heavy paraffinic	64742-54-7	5.00000	0.00004	

			Alcohols (C12-C16), ethoxylated	68551-12-2	4.00000	0.00003	
			Alcohols (C10-C16), ethoxylated	68002-97-1	4.00000	0.00003	
			Alcohols (C12-C14), ethoxylated	68439-50-9	4.00000	0.00003	
			Sorbitan Monooleate	1338-43-8	3.00000	0.00003	
			Polyethylene glycol monooleate	9004-96-0	3.00000	0.00003	
			Sorbitol Tetraoleate	61723-83-9	2.00000	0.00002	
			Dewaxed heavy paraffinic	64742-65-0	1.50000	0.00001	
			Alkyloxypolyethyleneoxyethanol	84133-50-6	1.00000	0.00001	
			Ammonium Acrylate	10604-69-0	0.50000	0.00000	
			Isopropanol	67-63-0	0.30000	0.00000	
			Acrylamide	79-06-1	0.10000	0.00000	
ICI-3240	FTSI	Biocide					
			Water	7732-18-5	55.00000	0.00017	
			Dazomet (Tetrahydro-3, 5-dimethyl-2H-1, 3, 5-thiadiazine-2-thione.	533-74-4	24.00000	0.00007	
			Sodium Hydroxide	1310-73-2	23.00000	0.00007	
FE-200L	FTSI	Iron Control					
			Water	7732-18-5	60.00000	0.00002	
			Tetrasodium EDTA	64-02-8	41.00000	0.00001	
			Trisodium Nitrilotriacetic acid	5064-31-3	2.00000	0.00000	
			Sodium Hydroxide	1310-73-2	2.00000	0.00000	
			Sodium glycolate	2836-32-0	1.50000	0.00000	
			Ethylenediaminetriaceticacid, trisodium salt	19019-43-3	0.80000	0.00000	
			Sodium formate	141-53-7	0.60000	0.00000	
			Iminodiacetate disodium salt	17593-73-6	0.20000	0.00000	
CI-150	FTSI	Acid Corrosion Inhibitor					
			Isopropanol	67-63-0	30.00000	0.00001	
			Organic amine resin salt	Proprietary	30.00000	0.00001	
			Ethylene Glycol	107-21-1	30.00000	0.00001	
			Aromatic aldehyde	Proprietary	10.00000	0.00000	
			Dimethylformamide	68-12-2	10.00000	0.00000	
			Quaternary ammonium compound	Proprietary	10.00000	0.00000	
			Alkylene Oxide Block Polymer	Proprietary	10.00000	0.00000	
			Water	7732-18-5	5.00000	0.00000	
			Diethylene glycol	111-46-6	1.00000	0.00000	
			Aliphatic alcohol	Proprietary	0.10000	0.00000	
			Fatty Acid	Proprietary	0.10000	0.00000	
			Fatty Acid Salt	Proprietary	0.10000	0.00000	
NE-100W	FTSI	Non-emulsifier					
			Water	7732-18-5	80.00000	0.00001	
			Methanol	67-56-1	15.00000	0.00000	
			2-Butoxyethanol	111-76-2	10.00000	0.00000	

		2-Propanol	67-63-0	10.00000	0.00000	
		Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00000	
		Benzene, C10-16 Alkyl Derivatives	68648-87-3	0.04000	0.00000	
		Unsulphonated Matter	Proprietary	0.03000	0.00000	
		Sulfuric Acid	7664-93-9	0.01000	0.00000	
		Sulfur Dioxide	7446-09-5		0.00000	

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.

* 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)