

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/27/2016
Job End Date:	5/15/2017
State:	Texas
County:	Reagan
API Number:	42-383-39748-00-00
Operator Name:	SEM Operating Company, LLC
Well Name and Number:	University 9 #2822H
Latitude:	31.23933800
Longitude:	-101.60753000
Datum:	NAD83
Federal Well:	YES
Indian Well:	NO
True Vertical Depth:	7,981
Total Base Water Volume (gal):	21,850,920
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	Sequitur	Base Fluid					
			Water	7732-18-5	100.00000	89.68113	None
100 Mesh Brown	Hexion	Proppant					
			Quartz (SiO2)	14808-60-7	100.00000	9.59802	None
DCF-5100	WST Energy	Surfactant					
			Isopropyl alcohol	67-63-0	40.00000	0.03259	None
			Esterfied phenolic polymer	129828-31-5	15.00000	0.01222	None
			Alcohol ethoxylate	68439-46-3	15.00000	0.01222	None
			Napthalene	91-20-3	5.00000	0.00407	None
			Solvent naphita(petroleum), Heavy arom	64742-94-5	5.00000	0.00407	None
DCF-231	WST Energy	Friction Reducer					
			Hydrotreated Light Distallate (Petroleum)	64742-47-8	25.00000	0.02447	None
			2-Propenoic Acid, polymer with 2-propenamide	9003-06-9	25.00000	0.02447	None
7.5% HCl	Reageant	Acid					
			Hydrochloric Acid	7647-01-0	7.50000	0.03728	None
AQUCAR 714	WST Energy	Biocide					

			Inert Ingredients	68439-46-3	83.50000	0.01939	None
			Glutaraldehyde	67-63-0	14.00000	0.00325	None
			Alkyl dimethyl benzyl ammonium chloride	129828-31-5	2.50000	0.00058	None
Payzone 217SI	Catalyst	Scale Inhibitor					
			Phosphonate	Proprietary	12.00000	0.00220	None
ACI-102HT	WST Energy	Corrosion Inhibitor					
			Ethylene glycol	107-21-1	40.00000	0.00055	None
			N,N-Dimethylformamide	68-12-2	15.00000	0.00020	None
			1-(Benzyl)quinolinium chloride	15619-48-4	10.00000	0.00014	None
			Ethanol, 2-Butoxy-	111-76-2	5.00000	0.00007	None
			Triethyl phosphate	78-40-0	5.00000	0.00007	None
			Cinnamaldehyde	104-55-2	5.00000	0.00007	None
			Nonylphenol ethoxylated	127087-87-0	5.00000	0.00007	None
			Alcohols, C6-12	68603-15-6	5.00000	0.00007	None
BL-4	WST Energy	Iron Control					
			Acetic Acid	64-19-7	70.00000	0.00103	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					
			2-Propenoic Acid, polymer with 2-propenamide	9003-06-9	25.00000	0.02447	
			Inert Ingredients	68439-46-3	83.50000	0.01939	
			Esterfied phenolic polymer	129828-31-5	15.00000	0.01222	
			Alcohol ethoxylate	68439-46-3	15.00000	0.01222	
			Solvent naphita(petroleum), Heavy arom	64742-94-5	5.00000	0.00407	
			Napthalene	91-20-3	5.00000	0.00407	
			Alkyl dimethyl benzyl ammonium chloride	129828-31-5	2.50000	0.00058	
			N,N-Dimethylformamide	68-12-2	15.00000	0.00020	
			1-(Benzyl)quinolinium chloride	15619-48-4	10.00000	0.00014	
			Ethanol, 2-Butoxy-	111-76-2	5.00000	0.00007	
			Alcohols, C6-12	68603-15-6	5.00000	0.00007	
			Triethyl phosphate	78-40-0	5.00000	0.00007	
			Cinnamaldehyde	104-55-2	5.00000	0.00007	
			Nonylphenol ethoxylated	127087-87-0	5.00000	0.00007	

* 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)