

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	11/14/2013
Job End Date:	11/21/2013
State:	Texas
County:	Schleicher
API Number:	42-413-32893-00-00
Operator Name:	HighMount Exploration & Production
Well Name and Number:	UNIVERSITY SOUTH 8-2H
Longitude:	-100.89994000
Latitude:	30.92489000
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	5,900
Total Base Water Volume (gal):	3,948,168
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	1.00000	0.84222	
Sand, White, 30/50	Baker Hughes	Proppant					
			Crystalline Silica (Quartz)	14808-60-7	1.00000	0.08351	
Sand, White, 40/70	Baker Hughes	Proppant					
			Crystalline Silica (Quartz)	14808-60-7	1.00000	0.02494	
Sand, White, 100 mesh	Baker Hughes	Proppant					
			Crystalline Silica (Quartz)	14808-60-7	1.00000	0.02227	
HCl, 10.1 - 15%	Baker Hughes	Acidizing					
			Water	7732-18-5	0.85000	0.01169	
			Hydrochloric Acid	7647-01-0	0.15000	0.00206	SmartCare Product
GW-4LDF	Baker Hughes	Gelling Agent					
			Petroleum Distillate Blend (1)	64742-47-8	0.70000	0.00138	
			Petroleum Distillate Blend (3)	8042-47-5	0.70000	0.00138	
			Petroleum Distillate Blend (2)	64742-55-8	0.70000	0.00138	
			Guar Gum	9000-30-0	0.60000	0.00118	SmartCare Product
Flo-Back Prime (tote)	Baker Hughes	Surfactant					
			Essential Oils	Trade Secret	0.60000	0.00073	SmartCare Product
			Isopropanol	67-63-0	0.30000	0.00036	

ClayTreat 4390	Baker Hughes	Clay Control					
			Non-hazardous ingredients (non-MSDS level ingredients are disclosed as dissociated components)	n/a	1.00000	0.00095	SmartCare Product
Clay Master-5C	Baker Hughes	Clay Control					
			Oxyakylated Amine Quat	138879-94-4	0.60000	0.00052	SmartCare Product
MaxPerm-20A, 265 gallon tote	Baker Hughes	Friction Reducer					
			Polyacrylate	Trade Secret	0.60000	0.00022	
			Petroleum Distillates	64742-47-8	0.30000	0.00011	
			Oxyalkylated Alcohol	Trade Secret	0.05000	0.00002	SmartCare Product
			Sodium Chloride	7647-14-5	0.03000	0.00001	
Parasorb 5000, bag	Baker Hughes	Paraffin Inhibitor					
			Calcined Diatomaceous Earth	91053-39-3	0.65000	0.00010	SmartCare Product
			White Mineral Oil	8042-47-5	0.30000	0.00005	
			Proprietary Paraffin Inhibitor	Trade Secret	0.25000	0.00004	
			Silica, Crystalline-Quartz	14808-60-7	0.05000	0.00001	
Alpha 125	Baker Hughes	Biocide					
			Water	7732-18-5	0.75000	0.00017	SmartCare Product
FRW-26D, bulk	Baker Hughes	Friction Reducer					
			No Hazardous Ingredients	N.A.	1.00000	0.00017	
ScaleSorb 4, (50# bag)	Baker Hughes	Scale Inhibitor					
			Diatomaceous Earth, Calcined	91053-39-3	1.00000	0.00008	SmartCare Product
			Proprietary Polymer Blend	Trade Secret	0.60000	0.00005	
Acetic Anhydride Blend	Baker Hughes	Acidizing					
			Acetic Anhydride	108-24-7	0.62000	0.00004	
			Acetic Acid	64-19-7	0.38000	0.00003	
GBW-5	Baker Hughes	Breaker					
			Ammonium persulphate	7727-54-0	1.00000	0.00006	SmartCare Product
Ferrotrol 300L	Baker Hughes	Iron Control					
			Citric Acid	77-92-9	0.60000	0.00005	SmartCare Product
CI-27	Baker Hughes	Corrosion Inhibitor					
			Methanol	67-56-1	0.60000	0.00002	
			Fatty Acids	Trade Secret	0.30000	0.00001	
			Thiourea Polymer	68527-49-1	0.30000	0.00001	
			Polyoxyalkylenes	Trade Secret	0.30000	0.00001	
			Propargyl Alcohol	107-19-7	0.10000	0.00000	
			Olefin	Trade Secret	0.05000	0.00000	
NE-900, tote	Baker Hughes	Non-emulsifier					
			Methanol	67-56-1	0.30000	0.00000	SmartCare Product
			Nonyl phenyl polyethylene glycol ether	9016-45-9	0.10000	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.							
		NON MSDS					

			Water	7732-18-5		0.00133	
			Surfactants	Trade Secret		0.00085	
			Citrus Terpenes	94266-47-4		0.00073	
			Choline Chloride	67-48-1		0.00072	
			Sodium Chloride	7647-14-5		0.00018	
			Anionic Water Soluble Polymer	Trade Secret		0.00017	
			Organic Polyol	112-27-6		0.00012	
			Glutaraldehyde	111-30-8		0.00007	
			Polysorbate	9005-65-6		0.00001	
			Oleate Ester	1338-43-8		0.00001	
			Copolymer	Trade Secret		0.00000	
			Methanol	67-56-1		0.00000	
			Vinyl Acetate Ethalene Copolymer	24937-78-8		0.00000	
			Formaldehyde	50-00-0		0.00000	

* 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)