

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date	06/14/2012
State:	California
County:	Kings
API Number:	04-031-20484
Operator Name:	Vintage Prod Of Cal
Well Name and Number:	Kettleman 1-29
Longitude:	-120.03963
Latitude:	35.98873
Long/Lat Projection:	NAD27
Production Type:	Oil
True Vertical Depth (TVD):	8,076
Total Water Volume (gal)*:	112,770

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	100.00%	90.12312%	
HCl, 10.1 - 15%	Baker Hughes	Acidizing	Hydrochloric Acid	7647-01-0	15.00%	0.43783%	
			Water	7732-18-5	85.00%	2.48103%	
13.5% HCl - 1.5% HF	Baker Hughes	Acidizing	Hydrochloric Acid	7647-01-0	30.00%	1.66120%	
			Hydrofluoric Acid	7664-39-3	7.00%	0.38761%	
Alpha 125	Baker Hughes	Biocide	Glutaraldehyde	111-30-8	30.00%	0.00759%	SmartCare Product
GBW-5	Baker Hughes	Breaker	Ammonium Persulfate	7727-54-0	100.00%	0.00335%	SmartCare Product
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00355%	SmartCare Product
			Water	7732-18-5	97.00%	0.11473%	
BC-3	Baker Hughes	Breaker Catalyst	No Hazardous Ingredients	Trade Secret	100.00%	0.00272%	
BF-7L	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.00215%	SmartCare Product
			Potassium Hydroxide	1310-58-3	1.00%	0.00004%	
			Water	7732-18-5	60.00%	0.00215%	
Clay Master-5C (Tote)	Baker Hughes	Clay Control	Oxyakylated Amine Quat	138879-94-4	60.00%	0.04979%	
CI-27 (260 gal tote)	Baker Hughes	Corrosion Inhibitor	Fatty Acids	Trade Secret	30.00%	0.01410%	SmartCare Product
			Methanol	67-56-1	60.00%	0.02820%	
			Olefin	Trade Secret	5.00%	0.00235%	
			Polyoxyalkylenes	Trade Secret	30.00%	0.01410%	

			Propargyl Alcohol	107-19-7	10.00%	0.00470%	
XLW-56, 330 gal tote	Baker Hughes	Crosslinker	D-Glucitol	50-70-4	10.00%	0.00031%	
			Glyoxal	107-22-2	30.00%	0.00094%	
			Sodium Hydroxide	1310-73-2	5.00%	0.00016%	
			Sodium Tetraborate	1330-43-4	10.00%	0.00031%	
FRW-18	Baker Hughes	Friction Reducer	Petroleum Distillates	64742-47-8	30.00%	0.01144%	SmartCare Product
GLFC-1B	Baker Hughes	Gelling Agent	Alkanes / Alkenes	Multiple	45.00%	0.03154%	
			Guar Gum	9000-30-0	50.00%	0.03504%	
Hy Temp O Intensifier	Baker Hughes	Intensifier	Formic Acid	64-18-6	98.00%	0.05922%	SmartCare Product
Ferrotrol 300L (Totes)	Baker Hughes	Iron Control	Citric Acid	77-92-9	60.00%	0.05741%	SmartCare Product
Ferrotrol 210	Baker Hughes	Iron Control	Erythorbic Acid	89-65-6	100.00%	0.01361%	SmartCare Product
NE-118, 55 gal drum	Baker Hughes	Non-emulsifier	1,2,4-Trimethylbenzene	95-63-6	5.00%	0.00079%	
			Isopropanol	67-63-0	100.00%	0.01581%	
			Light Aromatic Naphtha	64742-95-6	5.00%	0.00079%	
			Polyoxyalkylenes	Trade Secret	5.00%	0.00079%	
Sand, White, 100 mesh	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	0.57510%	
Ammonium Chloride, bulk	Baker Hughes	Salts	Ammonium Chloride	12125-02-9	100.00%	0.05032%	
GasFlo G, 330 gal tote	Baker Hughes	Surfactant	Methanol	67-56-1	30.00%	0.04605%	SmartCare Product
			Mixture of Surfactants	Trade Secret	60.00%	0.09209%	
			Water	7732-18-5	50.00%	0.07674%	
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.							
			1,2,3 - Trimethylbenzene	526-73-8		0.0000632309%	
			1,3,5 - Trimethylbenzene	108-67-8		0.0001264617%	
			Acetyl Triethyl Citrate	77-89-4		0.0027173416%	
			Alkylaryl Sulfonate	68584-27-0		0.0000316154%	
			Crystalline Silica	14808-60-7			
			Cumene	98-82-8		0.0000158077%	
			Ethoxylated Alcohol	Trade Secret		0.0007623800%	
			Ethylene Glycol Monobutyl Ether	111-76-2			
			Formaldehyde	50-00-0		0.0002349818%	
			Methanol	67-56-1		0.0000632896%	
			Modified Thiourea Polymer	68527-49-1		0.0051696005%	
			Naphthalene	91-20-3		0.0000015808%	
			Poly (acrylamide-co-acrylic acid)	Trade Secret		0.0114356993%	
			Poly (oxy-1,2-ethanediyl)	24938-91-8			
			Potassium Hydroxide	1310-58-3		0.0000079039%	
			Quaternary Ammonium Compounds bis[Hydrogenated Tallow Alkyl] Dimethyl Salts With Bentonite	68953-58-2			
			Salt	Trade Secret		0.0019059499%	
			Sodium Bicarbonate	144-55-8			
			Sodium Chloride	7647-14-5		0.0002349818%	

			Sorbitan Monooleate	Trade Secret		0.0019059499%	
			Water	7732-18-5		3.5665185054%	
			Xylene	1330-20-7		0.0000316154%	

* 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%

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)