

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date	03/06/2012
State:	California
County:	Kern
API Number:	04-030-46338
Operator Name:	Vintage Prod Of Cal
Well Name and Number:	Twisselman 16-14W
Longitude:	-119.68937
Latitude:	35.3991
Long/Lat Projection:	NAD27
Production Type:	Oil
True Vertical Depth (TVD):	6,970
Total Water Volume (gal)*:	561,078

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%	91.15859%	
HCl, 10.1 - 15%	Baker Hughes	Acidizing	Hydrochloric Acid	7647-01-0	15.00%	0.05651%	
			Water	7732-18-5	85.00%	0.32025%	
12% HCl - 3% HF (ABF30)	Baker Hughes	Acidizing	Hydrochloric Acid	7647-01-0	12.00%	0.09360%	
			Hydrofluoric Acid	7664-39-3	3.00%	0.02340%	
Alpha 125, 263 gl tote	Baker Hughes	Biocide	Glutaraldehyde	111-30-8	30.00%	0.00180%	SmartCare Product
GBW-5	Baker Hughes	Breaker	Ammonium Persulfate	7727-54-0	100.00%	0.00351%	SmartCare Product
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00088%	SmartCare Product
			Water	7732-18-5	97.00%	0.02852%	
High Perm CRB	Baker Hughes	Breaker	Ammonium Persulphate	7727-54-0	60.00%	0.00117%	SmartCare Product
			Crystalline Silica Quartz	14808-60-7	30.00%	0.00058%	
BC-3	Baker Hughes	Breaker Catalyst	No Hazardous Ingredients	Trade Secret	100.00%	0.00663%	
BF-7L, Tote	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.00772%	SmartCare Product
			Potassium Hydroxide	1310-58-3	1.00%	0.00013%	
			Water	7732-18-5	60.00%	0.00772%	
BF-7L	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.02782%	SmartCare Product
			Potassium Hydroxide	1310-58-3	1.00%	0.00046%	
			Water	7732-18-5	60.00%	0.02782%	

Clay Master-5C (Tote)	Baker Hughes	Clay Control	Oxyakylated Amine Quat	138879-94-4	60.00%	0.06441%	
CI-27 (260 gal tote)	Baker Hughes	Corrosion Inhibitor	Fatty Acids	Trade Secret	30.00%	0.00104%	SmartCare Product
			Methanol	67-56-1	60.00%	0.00208%	
			Olefin	Trade Secret	5.00%	0.00017%	
			Polyoxyalkylenes	Trade Secret	30.00%	0.00104%	
			Propargyl Alcohol	107-19-7	10.00%	0.00035%	
FRW-18	Baker Hughes	Friction Reducer	Petroleum Distillates	64742-47-8	30.00%	0.00904%	SmartCare Product
GW-3LDF	Baker Hughes	Gelling Agent	Acyclic Hydrocarbon Blend	Trade Secret	60.00%	0.12520%	SmartCare Product
			Alcohols, C12-14, Ethoxylated Propoxylated	68439-51-0	5.00%	0.01043%	
			Crystalline Silica, Quartz	14808-60-7	5.00%	0.01043%	
			Guar Gum	9000-30-0	60.00%	0.12520%	
Ferrotrol 300L (Totes)	Baker Hughes	Iron Control	Citric Acid	77-92-9	60.00%	0.00737%	SmartCare Product
Ferrotrol 210	Baker Hughes	Iron Control	Erythorbic Acid	89-65-6	100.00%	0.00175%	SmartCare Product
Sand, White, 40/70	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	1.43963%	
Sand, White, 100 mesh	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	1.03276%	
Super LC, 30/50	Baker Hughes	Proppant	Hexamethylenetetramine	1009-7-0	0.01%	0.00049%	
			P/F Resin	9003-35-4	5.00%	0.24749%	
			Silicon Dioxide (Silica Sand)	14808-60-7	97.00%	4.80134%	
Ammonium Chloride, bulk	Baker Hughes	Salts	Ammonium Chloride	12125-02-9	100.00%	0.01317%	
GasFlo G, 330 gal tote	Baker Hughes	Surfactant	Methanol	67-56-1	30.00%	0.05419%	SmartCare Product
			Mixture of Surfactants	Trade Secret	60.00%	0.10838%	
			Water	7732-18-5	50.00%	0.09031%	
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.							
			Acetyl Triethyl Citrate	77-89-4		0.0066291402%	
			Cured Acrylic Resin	Trade Secret		0.0005845803%	
			Ethoxylated Alcohol	Trade Secret		0.0006027382%	
			Formaldehyde	50-00-0		0.0000173713%	
			Isotridecanol, Ethoxylated (TDA-6)	9043-30-5		0.0104336179%	
			Isotridecanol, Ethoxylated (TDA-9)	9043-30-5		0.0104336179%	
			Methanol	67-56-1		0.0000150123%	
			Modified Thiourea Polymer	68527-49-1		0.0003821695%	
			Poly (acrylamide-co-acrylic acid)	Trade Secret		0.0090410731%	
			Quaternary Ammonium Compounds bis[Hydrogenated Tallow Alkyl] Dimethyl Salts With Bentonite	68953-58-2		0.0104336179%	
			Salt	Trade Secret		0.0015068455%	
			Sodium Chloride	7647-14-5		0.0000173713%	
			Sorbitan Monooleate	Trade Secret		0.0015068455%	
			Water	7732-18-5		0.0349543536%	

* 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)