

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date	04/24/2012
State:	California
County:	Kern
API Number:	04-030-46301
Operator Name:	Vintage Prod Of Cal
Well Name and Number:	Twisselman 17H-14W
Longitude:	-119.69295
Latitude:	35.4028
Long/Lat Projection:	NAD27
Production Type:	Oil
True Vertical Depth (TVD):	6,805
Total Water Volume (gal)*:	518,406

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%	84.75717%	
Alpha 125	Baker Hughes	Biocide	Glutaraldehyde	111-30-8	30.00%	0.00679%	SmartCare Product
GBW-5	Baker Hughes	Breaker	Ammonium Persulfate	7727-54-0	100.00%	0.00255%	SmartCare Product
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00111%	SmartCare Product
			Water	7732-18-5	97.00%	0.03600%	
High Perm CRB	Baker Hughes	Breaker	Ammonium Persulphate	7727-54-0	60.00%	0.00135%	SmartCare Product
			Crystalline Silica Quartz	14808-60-7	30.00%	0.00068%	
BC-3	Baker Hughes	Breaker Catalyst	No Hazardous Ingredients	Trade Secret	100.00%	0.02390%	
BF-7L	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.05541%	SmartCare Product
			Potassium Hydroxide	1310-58-3	1.00%	0.00092%	
			Water	7732-18-5	60.00%	0.05541%	
Clay Master-5C (Tote)	Baker Hughes	Clay Control	Oxyakylated Amine Quat	138879-94-4	60.00%	0.06806%	
XLW-32, 260 gal tote	Baker Hughes	Crosslinker	Boric Acid (H3BO3)	10043-35-3	30.00%	0.01190%	
			Methanol	67-56-1	60.00%	0.02381%	
			Methyl Borate	121-43-7	30.00%	0.01190%	
FRW-18	Baker	Friction Reducer	Petroleum Distillates	64742-47-8	30.00%	0.00868%	SmartCare Product

	Hughes						
GW-3LDF	Baker Hughes	Gelling Agent	1-Butoxy-2-Propanol	5131-66-8	5.00%	0.01708%	SmartCare Product
			Cyrstalline Silica, Quartz (SiO2)	14808-60-7	5.00%	0.01708%	
			Guar Gum	9000-30-0	60.00%	0.20492%	
			Isotridecanol, ethoxylated	9043-30-5	5.00%	0.01708%	
			Paraffinic Petroleum Distillate	64742-55-8	30.00%	0.10246%	
			Petroleum Distillates	64742-47-8	30.00%	0.10246%	
Sand, White, 40/70	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	1.14116%	
Sand, White, 100 mesh	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	0.88240%	
Super LC, 30/50	Baker Hughes	Proppant	Hexamethylenetetramine	1009-7-0	0.01%	0.00117%	
			P/F Resin	9003-35-4	5.00%	0.58284%	
			Silicon Dioxide (Silica Sand)	14808-60-7	97.00%	11.30705%	
GasFlo G, 330 gal tote	Baker Hughes	Surfactant	Methanol	67-56-1	30.00%	0.10503%	SmartCare Product
			Mixture of Surfactants	Trade Secret	60.00%	0.21006%	
			Water	7732-18-5	50.00%	0.17505%	

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.

			2-Butoxy-1-Propanol	15821-83-7		0.0002732299%	
			Acetyl Triethyl Citrate	77-89-4		0.0239043255%	
			Cured Acrylic Resin	Trade Secret		0.0006765098%	
			Ethoxylated Alcohol	Trade Secret		0.0005788143%	
			Methanol	67-56-1		0.0000565434%	
			Poly (acrylamide-co-acrylic acid)	Trade Secret		0.0086822139%	
			Salt	Trade Secret		0.0014470357%	
			Sorbitan Monooleate	Trade Secret		0.0014470357%	
			Water	7732-18-5		0.0314333729%	

* 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)