

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	09/27/2011
State:	California
County:	Kern
API Number:	04-030-43598
Operator Name:	Vintage Prod Of Cal
Well Name and Number:	Twisselman 13-14W
Longitude:	-119.68926
Latitude:	35.399302
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	6,845
Total Water Volume (gal)*:	222,264

### 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%	91.06482%	0
Alpha 125	Baker Hughes	Biocide	Glutaraldehyde	111-30-8	30.00%	0.02811%	0
GBW-5	Baker Hughes	Breaker	Ammonium Persulfate	7727-54-0	100.00%	0.00393%	0
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00080%	0
0	0	0	Water	7732-18-5	97.00%	0.02583%	0
High Perm CRB	Baker Hughes	Breaker	Ammonium Persulphate	7727-54-0	100.00%	0.00147%	0
0	0	0	Crystalline Silica Quartz	14808-60-7	15.00%	0.00022%	0
BC-3	Baker Hughes	Breaker Catalyst	Non-Hazardous Ingredient	N.A.	100.00%	0.00721%	0
BF-7L, Tote	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	50.00%	0.02410%	0
Clay Master-5C	Baker Hughes	Clay Control	Oxyakylated Amine Quat	138879-94-4	60.00%	0.06787%	0
XLW-32	Baker Hughes	Crosslinker	Boric Oxide	1303-86-2	20.00%	0.00399%	0
0	0	0	Methanol	67-56-1	90.00%	0.01795%	0
FRW-18	Baker Hughes	Friction Reducer	Hydrotreated Light Distillate	64742-47-8	30.00%	0.01016%	0
GW-3LDF	Baker Hughes	Gelling Agent	Guar Gum	9000-30-0	40.00%	0.07537%	0

0	0	0	Petroleum Distillate Blend	CBI	70.00%	0.13190%	0
Sand, White, 40/70	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	2.44223%	0
Sand, White, 100 mesh	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	0.76657%	0
Super LC, 30/50	Baker Hughes	Proppant	Hexamethylenetetramine	1009-7-0	0.01%	0.00050%	0
0	0	0	P/F Resin	9003-35-4	5.00%	0.24865%	0
0	0	0	Silicon Dioxide (Silica Sand)	14808-60-7	97.00%	4.82372%	0
InFlo 250W	Baker Hughes	Surfactant	2-Butoxyethanol	111-76-2	20.00%	0.03917%	0
0	0	0	Methanol	67-56-1	30.00%	0.05875%	0

\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

All component information listed was obtained from the supplier' s Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration' s (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.