

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	10/08/2011
State:	California
County:	Kern
API Number:	04-030-43917
Operator Name:	Vintage Prod Of Cal
Well Name and Number:	Brown Unit 33-4H
Longitude:	-119.291486
Latitude:	35.551235
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	7,959
Total Water Volume (gal)*:	369,810

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%	84.54689%	0
Alpha 125	Baker Hughes	Biocide	Glutaraldehyde	111-30-8	30.00%	0.00824%	0
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00499%	0
0	0	0	Water	7732-18-5	97.00%	0.16122%	0
BC-3	Baker Hughes	Breaker Catalyst	Non-Hazardous Ingredient	N.A.	100.00%	0.02916%	0
BF-7L	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	50.00%	0.19579%	0
XLW-56	Baker Hughes	Crosslinker	D-Glucitol	50-70-4	10.00%	0.02172%	0
0	0	0	Glyoxal	107-22-2	30.00%	0.06517%	0
0	0	0	Sodium Hydroxide	1310-73-2	5.00%	0.01086%	0
0	0	0	Sodium Tetraborate	1330-43-4	10.00%	0.02172%	0
GLFC-1B	Baker Hughes	Gelling Agent	Alkanes / Alkenes	Multiple	45.00%	0.36873%	0
0	0	0	Guar Gum	9000-30-0	50.00%	0.40970%	0
Sand, White, 20/40	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	11.11826%	0
Sand, White, 100 mesh	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	0.05484%	0
SB Excel 20/40	Baker Hughes	Proppant	Quartz (SiO2)	14808-60-7	100.00%	2.72116%	0

InFlo 250W	Baker Hughes	Surfactant	2-Butoxyethanol	111-76-2	20.00%	0.04024%	0
0	0	0	Methanol	67-56-1	30.00%	0.06036%	0
0	0	0	Surfactants	CBI	80.00%	0.16095%	0

* 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%

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.