

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	9/2/2012
State:	California
County/Parish:	Kern County
API Number:	0403048232
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	315A-32S
Longitude:	-119.428541
Latitude:	35.275322
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	5,858
Total Water Volume (gal)*:	151,823

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
Produced Water (Oxy provided), YF135 Flex	Schlumberger	Activator , Surfactant , Breaker, Gelling Agent, Crosslinker, Bactericide, Demulsifier, Fluid Loss Additive , Propping Agent	Water (Including Mix Water Supplied by Client)*	-		76.14962%	
			Crystalline silica	14808-60-7	96.51108%	23.01826%	
			Phenolic resin	9003-35-4	4.80039%	1.14491%	
			Carbohydrate polymer	Proprietary	1.40939%	0.33615%	
			Oxyalkylated Alcohol (2)	Proprietary	0.83399%	0.19891%	
			Propan-2-ol	67-63-0	0.79296%	0.18912%	
			Amine derivative	Proprietary	0.29678%	0.07078%	
			Aliphatic polyol	Proprietary	0.27571%	0.06576%	
			Methanol	67-56-1	0.24619%	0.05872%	

			Diammonium peroxidisulphate	7727-54-0	0.19379%	0.04622%	
			Potassium hydroxide	1310-58-3	0.13786%	0.03288%	
			Oxyalkylated Alkyl Alcohol (1)	Proprietary	0.04103%	0.00979%	
			Aliphatic co-polymer	Proprietary	0.03876%	0.00924%	
			Heavy aromatic naphtha	64742-94-5	0.02052%	0.00489%	
			Oxyalkylated Alcohol (1)	Proprietary	0.02052%	0.00489%	
			Quaternary ammonium compounds	Proprietary	0.02052%	0.00489%	
			Tetrakis(hydroxymethyl)p hosphonium sulfate	55566-30-8	0.01087%	0.00259%	
			Non-crystalline silica	7631-86-9	0.01087%	0.00259%	
			Naphtalene (impurity)	91-20-3	0.00410%	0.00098%	

* 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%

Report ID: RPT-7446 (Generated on 10/11/2012 5:34 PM)

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