

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	6/20/2012
State:	California
County/Parish:	Kern County
API Number:	0403047716
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	11SE-19R
Longitude:	-119.552132
Latitude:	35.30953
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	2,666
Total Water Volume (gal)*:	18,544

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
YF120-Flex	Schlumberger	Activator , Surfactant , Breaker, Stabilizing Agent, Gelling Agent, Crosslinker, Clay Control Agent, Bactericide, Demulsifier, Propping Agent	Water (Including Mix Water Supplied by Client)*	-		79.74987%	
			Crystalline silica	14808-60-7	96.75920%	19.59387%	
			Phenolic resin	9003-35-4	4.83796%	0.97969%	
			Oxyalkylated Alcohol (2)	Proprietary	0.76016%	0.15393%	
			Propan-2-ol	67-63-0	0.72471%	0.14675%	
			2,2',2"-nitrilotriethanol	102-71-6	0.71504%	0.14480%	
			Carbohydrate polymer	Proprietary	0.66573%	0.13481%	
			Diammonium peroxodisulphate	7727-54-0	0.27950%	0.05660%	

			Methanol	67-56-1	0.27635%	0.05596%	
			Amine derivative	Proprietary	0.25446%	0.05153%	
			Zirconium dichloride oxide	7699-43-6	0.24810%	0.05024%	
			Aliphatic polyol	Proprietary	0.16922%	0.03427%	
			Potassium hydroxide	1310-58-3	0.08461%	0.01713%	
			Aliphatic co-polymer	Proprietary	0.05590%	0.01132%	
			Tetrakis(hydroxymethyl)p hosponium sulfate	55566-30-8	0.03659%	0.00741%	
			Non-crystalline silica	7631-86-9	0.03659%	0.00741%	
			Oxyalkylated Alkyl Alcohol (1)	Proprietary	0.03546%	0.00718%	
			Oxyalkylated Alcohol (1)	Proprietary	0.01773%	0.00359%	
			Heavy aromatic naphtha	64742-94-5	0.01773%	0.00359%	
			Quaternary ammonium compounds	Proprietary	0.01773%	0.00359%	
			Naphtalene (impurity)	91-20-3	0.00355%	0.00072%	

* 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%

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