

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	8/29/2012
State:	California
County/Parish:	Kern County
API Number:	0403048233
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	317A-32S
Longitude:	-119.428514
Latitude:	35.275244
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	6,102
Total Water Volume (gal)*:	172,954

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
4% KCl 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)*	-		78.46600%	
			Crystalline silica	14808-60-7	96.96712%	20.88090%	
			Phenolic resin	9003-35-4	4.82313%	1.03861%	
			Carbohydrate polymer	Proprietary	1.21723%	0.26212%	
			Oxyalkylated Alcohol (2)	Proprietary	0.70361%	0.15151%	
			Propan-2-ol	67-63-0	0.66767%	0.14378%	
			Aliphatic polyol	Proprietary	0.22928%	0.04937%	
			Amine derivative	Proprietary	0.22607%	0.04868%	
			Methanol	67-56-1	0.21561%	0.04643%	

			Diammonium peroxidisulphate	7727-54-0	0.20809%	0.04481%	
			Potassium hydroxide	1310-58-3	0.11464%	0.02469%	
			Aliphatic co-polymer	Proprietary	0.03884%	0.00836%	
			Oxyalkylated Alkyl Alcohol (1)	Proprietary	0.03594%	0.00774%	
			Tetrakis(hydroxymethyl)p hosponium sulfate	55566-30-8	0.01816%	0.00391%	
			Non-crystalline silica	7631-86-9	0.01816%	0.00391%	
			Heavy aromatic naphtha	64742-94-5	0.01797%	0.00387%	
			Quaternary ammonium compounds	Proprietary	0.01797%	0.00387%	
			Oxyalkylated Alcohol (1)	Proprietary	0.01797%	0.00387%	
			Naphtalene (impurity)	91-20-3	0.00359%	0.00077%	

* 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)