

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	10/23/2012
State:	California
County/Parish:	Kern County
API Number:	0403046456
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	64-24Z
Longitude:	-119.560511
Latitude:	35.304292
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	3,388
Total Water Volume (gal)*:	228,770

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), YF125 Flex	Schlumberger	Activator , Surfactant , Breaker, Breaker Aid, Gelling Agent, Crosslinker, Clay Control Agent, Bactericide, Emulsion Preventer, Propping Agent	Water (Including Mix Water Supplied by Client)*	-		74.38922%	
			Crystalline silica	14808-60-7	98.19564%	25.14867%	
			Carbohydrate polymer	Proprietary	0.90305%	0.23128%	
			Phenolic resin	9003-35-4	0.51607%	0.13217%	
			Aliphatic polyol	Proprietary	0.33273%	0.08522%	
			Diammonium peroxidisulphate	7727-54-0	0.20886%	0.05349%	
			Propan-2-ol	67-63-0	0.18472%	0.04731%	
			Potassium hydroxide	1310-58-3	0.15149%	0.03880%	

			2,2',2"-nitrilotriethanol	102-71-6	0.14676%	0.03759%	
			Amine derivative	Proprietary	0.09888%	0.02532%	
			Oxyalkylated Alcohol (2)	Proprietary	0.09545%	0.02444%	
			Zirconium dichloride oxide	7699-43-6	0.05438%	0.01393%	
			Aliphatic co-polymer	Proprietary	0.04679%	0.01198%	
			Polyethylene glycol monohexyl ether	31726-34-8	0.03691%	0.00945%	
			Methanol	67-56-1	0.02852%	0.00730%	
			Alkylalcohol ethoxylated	Proprietary	0.01488%	0.00381%	
			Oxyalkylated Alcohol (1)	Proprietary	0.01488%	0.00381%	
			Dioctyl sulfosuccinate sodium salt	Proprietary	0.01488%	0.00381%	
			Non-crystalline silica	7631-86-9	0.00875%	0.00224%	
			Tetrakis(hydroxymethyl)p hosphonium sulfate	55566-30-8	0.00875%	0.00224%	

* 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)