

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	1/21/2012
State:	California
County/Parish	Kern County
API Number:	0403044854
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	56H-34R
Longitude:	-119.492014400833
Latitude:	35.2722426376578
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	3,989
Total Water Volume (gal)*:	152,064

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
YF120ST, WF120	Schlumberger	Activator , Breaker, Surfactant , Crosslinker, Gelling Agent, Bactericide, Demulsifier, Propping Agent, Fluid Loss Additive	Water (Including Mix Water Supplied by Client)*	-		74.70877%	
			Crystalline silica	14808-60-7	95.15123%	24.06492%	
			Phenolic resin	9003-35-4	1.93236%	0.48872%	
			Propan-2-ol	67-63-0	0.73629%	0.18622%	
			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.70369%	0.17797%	
			Guar gum	9000-30-0	0.64070%	0.16204%	
			1, 2, 3 - Propanetriol	56-81-5	0.24204%	0.06122%	
			Sodium tetraborate	1303-96-4	0.14523%	0.03673%	

			decahydrate				
			Methanol	67-56-1	0.13521%	0.03420%	
			Diammonium peroxidisulphate	7727-54-0	0.13057%	0.03302%	
			Decyl-dimethyl amine oxide	2605-79-0	0.07527%	0.01904%	
			Polyvinylidene chloride	9002-85-1	0.04096%	0.01036%	
			Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.02403%	0.00608%	
			Ethoxylated propoxylated 4-nonylphenol-formaldehyde resin	30846-35-6	0.01796%	0.00454%	
			Heavy aromatic naphtha	64742-94-5	0.01213%	0.00307%	
			Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.01189%	0.00301%	
			Alcohol, C11-14, ethoxylated	78330-21-9	0.01189%	0.00301%	
			Non-crystalline silica	7631-86-9	0.01013%	0.00256%	
			Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.00838%	0.00212%	
			Poly(oxy-1,2-ethanediyl)	25322-68-3	0.00534%	0.00135%	
			Naphtalene (impurity)	91-20-3	0.00242%	0.00061%	
			Decyldimethyl amine (impurity)	1120-24-7	0.00120%	0.00030%	
			Magnesium silicate hydrate (talc)	14807-96-6	0.00102%	0.00026%	
			Hydrogen peroxide (impurity)	7722-84-1	0.00072%	0.00018%	

* 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)