

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	5/14/2012
State:	California
County/Parish	Kern County
API Number:	0403047255
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	35-31R
Longitude:	-119.54948
Latitude:	35.274688
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	3,212
Total Water Volume (gal)*:	27,221

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	Schlumberger	Activator , Surfactant , Breaker, Crosslinker, Gelling Agent, Clay Control Agent, Bactericide, Demulsifier, Propping Agent	Water (Including Mix Water Supplied by Client)*	-		63.58869%	
			Crystalline silica	14808-60-7	98.03860%	35.69714%	
			Phenolic resin	9003-35-4	1.41152%	0.51395%	
			Guar gum	9000-30-0	0.35973%	0.13098%	
			Methanol	67-56-1	0.12731%	0.04636%	
			Diammonium peroxidisulphate	7727-54-0	0.10993%	0.04003%	
			1, 2, 3 - Propanetriol	56-81-5	0.09880%	0.03597%	
			Alcohol, C7-9-iso, C8,	78330-19-5	0.09356%	0.03407%	

			ethoxylated				
			Propan-2-ol	67-63-0	0.08017%	0.02919%	
			Sodium tetraborate decahydrate	1303-96-4	0.05928%	0.02158%	
			Decyl-dimethyl amine oxide	2605-79-0	0.04892%	0.01781%	
			Sodium hydroxide	1310-73-2	0.03003%	0.01093%	
			Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.01956%	0.00712%	
			Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.01607%	0.00585%	
			Ethoxylated propoxylated 4-nonylphenol-formaldehyde resin	30846-35-6	0.01462%	0.00532%	
			Ethanaminium, N,N,N-trimethyl-2-[(2-methyl-1-oxo-2-propenyl)oxy]-, methyl sulfate, homopolymer	27103-90-8	0.01455%	0.00530%	
			Heavy aromatic naphtha	64742-94-5	0.00988%	0.00360%	
			Alcohol, C11-14, ethoxylated	78330-21-9	0.00968%	0.00353%	
			Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.00968%	0.00353%	
			Non-crystalline silica	7631-86-9	0.00559%	0.00204%	
			Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.00461%	0.00168%	
			Poly(oxy-1,2-ethanediyl)	25322-68-3	0.00435%	0.00158%	
			Naphtalene (impurity)	91-20-3	0.00197%	0.00072%	

			Magnesium silicate hydrate (talc)	14807-96-6	0.00084%	0.00031%	
			Decyldimethyl amine (impurity)	1120-24-7	0.00078%	0.00028%	
			Hydrogen peroxide (impurity)	7722-84-1	0.00047%	0.00017%	

* 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)