

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	3/17/2012
State:	California
County/Parish	Kern County
API Number:	0403046478
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	5-3-3D
Longitude:	-119.385831574773
Latitude:	35.1773057276868
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	3,841
Total Water Volume (gal)*:	41,213

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
WF125ST	Schlumberger	Activator , Surfactant , Breaker, Crosslinker, Gelling Agent, Clay Control Agent, Bactericide, Demulsifier, Propping Agent	Water (Including Mix Water Supplied by Client)*	-		73.34409%	
			Crystalline silica	14808-60-7	95.46025%	25.44580%	
			Phenolic resin	9003-35-4	1.94817%	0.51930%	
			Guar gum	9000-30-0	0.73400%	0.19566%	
			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.37034%	0.09872%	
			Propan-2-ol	67-63-0	0.36151%	0.09636%	
			Diammonium peroxidisulphate	7727-54-0	0.25520%	0.06803%	

			1, 2, 3 - Propanetriol	56-81-5	0.24302%	0.06478%	
			Methanol	67-56-1	0.20617%	0.05496%	
			Sodium tetraborate decahydrate	1303-96-4	0.14581%	0.03887%	
			Decyl-dimethyl amine oxide	2605-79-0	0.06009%	0.01602%	
			Zirconium dichloride oxide	7699-43-6	0.05591%	0.01490%	
			Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.03664%	0.00977%	
			Ethoxylated propoxylated 4-nonylphenol-formaldehyde resin	30846-35-6	0.02739%	0.00730%	
			Heavy aromatic naphtha	64742-94-5	0.01850%	0.00493%	
			Alcohol, C11-14, ethoxylated	78330-21-9	0.01814%	0.00483%	
			Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.01814%	0.00483%	
			Non-crystalline silica	7631-86-9	0.01640%	0.00437%	
			Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.01440%	0.00384%	
			Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.00845%	0.00225%	
			Poly(oxy-1,2-ethanediyl)	25322-68-3	0.00814%	0.00217%	
			Naphtalene (impurity)	91-20-3	0.00370%	0.00099%	
			Decyldimethyl amine (impurity)	1120-24-7	0.00096%	0.00026%	
			Hydrogen peroxide (impurity)	7722-84-1	0.00058%	0.00015%	

			Magnesium silicate hydrate (talc)	14807-96-6	0.00035%	0.00009%	
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* 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)