

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	3/25/2012
State:	California
County/Parish	Kern County
API Number:	0403046479
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	8-4-3D
Longitude:	-119.377066833571
Latitude:	35.1740974574914
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	3,628
Total Water Volume (gal)*:	50,736

### 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)*	-		75.57335%	
			Crystalline silica	14808-60-7	95.23995%	23.26393%	
			Phenolic resin	9003-35-4	1.94367%	0.47477%	
			Propan-2-ol	67-63-0	0.60959%	0.14890%	
			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.59298%	0.14484%	
			Guar gum	9000-30-0	0.54036%	0.13199%	
			1, 2, 3 - Propanetriol	56-81-5	0.28002%	0.06840%	
			Methanol	67-56-1	0.18208%	0.04448%	

			Sodium tetraborate decahydrate	1303-96-4	0.16801%	0.04104%	
			Diammonium peroxidisulphate	7727-54-0	0.14468%	0.03534%	
			Decyl-dimethyl amine oxide	2605-79-0	0.08537%	0.02085%	
			Zirconium dichloride oxide	7699-43-6	0.05107%	0.01247%	
			Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.03028%	0.00740%	
			Ethoxylated propoxylated 4-nonylphenol-formaldehyde resin	30846-35-6	0.02263%	0.00553%	
			Non-crystalline silica	7631-86-9	0.01901%	0.00464%	
			Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.01754%	0.00428%	
			Heavy aromatic naphtha	64742-94-5	0.01529%	0.00374%	
			Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.01527%	0.00373%	
			Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.01499%	0.00366%	
			Alcohol, C11-14, ethoxylated	78330-21-9	0.01499%	0.00366%	
			Cationic polymer	Proprietary	0.00988%	0.00241%	
			Poly(oxy-1,2-ethanediyl)	25322-68-3	0.00673%	0.00164%	
			Naphtalene (impurity)	91-20-3	0.00306%	0.00075%	
			Decyldimethyl amine (impurity)	1120-24-7	0.00137%	0.00033%	
			Hydrogen peroxide	7722-84-1	0.00082%	0.00020%	

			(impurity)				
			Magnesium silicate hydrate (talc)	14807-96-6	0.00080%	0.00020%	

\* 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)