

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	4/27/2012
State:	California
County/Parish	Kern County
API Number:	0403037337
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	22-27R
Longitude:	-119.501289
Latitude:	35.293318
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	2,618
Total Water Volume (gal)*:	29,501

### 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
YF125ST	Schlumberger	Activator , Surfactant , Breaker, Stabilizing Agent, Crosslinker, Gelling Agent, Clay Control Agent, Bactericide, Demulsifier, Propping Agent	Water (Including Mix Water Supplied by Client)*	-		80.72084%	
			Crystalline silica	14808-60-7	93.73310%	18.07095%	
			Phenolic resin	9003-35-4	4.83064%	0.93131%	
			Guar gum	9000-30-0	0.72869%	0.14049%	
			Propan-2-ol	67-63-0	0.65684%	0.12663%	
			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.64836%	0.12500%	
			2,2',2"-nitrilotriethanol	102-71-6	0.27120%	0.05228%	
			Methanol	67-56-1	0.26378%	0.05085%	

			1, 2, 3 - Propanetriol	56-81-5	0.17883%	0.03448%	
			Diammonium peroxidisulphate	7727-54-0	0.16837%	0.03246%	
			Decyl-dimethyl amine oxide	2605-79-0	0.13128%	0.02531%	
			Sodium tetraborate decahydrate	1303-96-4	0.10730%	0.02069%	
			Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.04204%	0.00810%	
			Ethoxylated propoxylated 4-nonylphenol-formaldehyde resin	30846-35-6	0.03142%	0.00606%	
			Cationic polymer	Proprietary	0.02299%	0.00443%	
			Heavy aromatic naphtha	64742-94-5	0.02123%	0.00409%	
			Alcohol, C11-14, ethoxylated	78330-21-9	0.02081%	0.00401%	
			Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.02081%	0.00401%	
			Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.01777%	0.00343%	
			Non-crystalline silica	7631-86-9	0.01729%	0.00333%	
			Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.01531%	0.00295%	
			Poly(oxy-1,2-ethanediyl)	25322-68-3	0.00934%	0.00180%	
			Naphtalene (impurity)	91-20-3	0.00424%	0.00082%	
			Decyldimethyl amine (impurity)	1120-24-7	0.00210%	0.00040%	
			Hydrogen peroxide	7722-84-1	0.00126%	0.00024%	

			(impurity)				
			Magnesium silicate hydrate (talc)	14807-96-6	0.00093%	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)