

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	2/13/2012
State:	California
County/Parish	Kern County
API Number:	0403045801
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	4-3-6D
Longitude:	-119.440093628481
Latitude:	35.1756377399157
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	2,369
Total Water Volume (gal)*:	188,884

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)*	-		71.22303%	
			Crystalline silica	14808-60-7	97.81761%	28.14895%	
			Guar gum	9000-30-0	0.57623%	0.16582%	
			Phenolic resin	9003-35-4	0.32426%	0.09331%	
			1, 2, 3 - Propanetriol	56-81-5	0.29388%	0.08457%	
			Diammonium peroxidisulphate	7727-54-0	0.22971%	0.06610%	
			Sodium tetraborate decahydrate	1303-96-4	0.17633%	0.05074%	

			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.13631%	0.03922%	
			Methanol	67-56-1	0.12553%	0.03612%	
			Propan-2-ol	67-63-0	0.12553%	0.03612%	
			Decyl-dimethyl amine oxide	2605-79-0	0.05864%	0.01687%	
			Zirconium dichloride oxide	7699-43-6	0.02414%	0.00695%	
			Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.02043%	0.00588%	
			Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.01969%	0.00567%	
			Ethoxylated propoxylated 4-nonylphenol-formaldehyde resin	30846-35-6	0.01527%	0.00440%	
			Heavy aromatic naphtha	64742-94-5	0.01032%	0.00297%	
			Alcohol, C11-14, ethoxylated	78330-21-9	0.01011%	0.00291%	
			Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.01011%	0.00291%	
			Cationic polymer	Proprietary	0.00892%	0.00257%	
			Non-crystalline silica	7631-86-9	0.00816%	0.00235%	
			Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.00659%	0.00190%	
			Poly(oxy-1,2-ethanediyl)	25322-68-3	0.00454%	0.00131%	
			Naphtalene (impurity)	91-20-3	0.00206%	0.00059%	
			Magnesium silicate hydrate (talc)	14807-96-6	0.00104%	0.00030%	
			Decyldimethyl amine	1120-24-7	0.00094%	0.00027%	

			(impurity)				
			Hydrogen peroxide (impurity)	7722-84-1	0.00056%	0.00016%	

* 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%

Report ID: RPT-3609 (Generated on 5/9/2012 2:26 PM)

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)