

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	7/14/2012
State:	California
County/Parish:	Kern County
API Number:	0402958310
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	66-24Z
Longitude:	-119.559153
Latitude:	35.30111
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	2,672
Total Water Volume (gal)*:	58,727

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, Breaker Aid, Crosslinker, Gelling Agent, Clay Control Agent, Bactericide, Demulsifier, Propping Agent	Water (Including Mix Water Supplied by Client)*	-		72.32260%	
			Crystalline silica	14808-60-7	97.26117%	26.91936%	
			Phenolic resin	9003-35-4	4.86306%	1.34597%	
			Oxyalkylated Alcohol (2)	Proprietary	0.69217%	0.19158%	
			Propan-2-ol	67-63-0	0.66478%	0.18399%	
			Carbohydrate polymer	Proprietary	0.65157%	0.18034%	
			Aliphatic polyol	Proprietary	0.43821%	0.12129%	
			Sodium tetraborate decahydrate	1303-96-4	0.32866%	0.09096%	

			Diammonium peroxidisulphate	7727-54-0	0.26372%	0.07299%	
			Amine derivative	Proprietary	0.18540%	0.05131%	
			Methanol	67-56-1	0.17900%	0.04954%	
			2,2',2"-nitrilotriethanol	102-71-6	0.12494%	0.03458%	
			Aliphatic co-polymer	Proprietary	0.05860%	0.01622%	
			Zirconium dichloride oxide	7699-43-6	0.05362%	0.01484%	
			Oxyalkylated Alkyl Alcohol (1)	Proprietary	0.02739%	0.00758%	
			Oxyalkylated Alcohol (1)	Proprietary	0.01369%	0.00379%	
			Quaternary ammonium compounds	Proprietary	0.01369%	0.00379%	
			Heavy aromatic naphtha	64742-94-5	0.01369%	0.00379%	
			Tetrakis(hydroxymethyl)p hosphonium sulfate	55566-30-8	0.00767%	0.00212%	
			Non-crystalline silica	7631-86-9	0.00767%	0.00212%	
			Naphtalene (impurity)	91-20-3	0.00274%	0.00076%	

* 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-5822 (Generated on 8/3/2012 9:49 AM)

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