

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	5/18/2012
State:	California
County/Parish	Kern County
API Number:	0403047347
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	32-31R
Longitude:	-119.547717
Latitude:	35.279177
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	3,039
Total Water Volume (gal)*:	25,795

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)*	-		61.69141%	
			Crystalline silica	14808-60-7	97.00899%	37.16278%	
			Phenolic resin	9003-35-4	3.29540%	1.26242%	
			Guar gum	9000-30-0	0.23405%	0.08966%	
			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.15386%	0.05894%	
			Propan-2-ol	67-63-0	0.15313%	0.05866%	
			Diammonium peroxidisulphate	7727-54-0	0.14812%	0.05674%	

			Methanol	67-56-1	0.08836%	0.03385%	
			1, 2, 3 - Propanetriol	56-81-5	0.06643%	0.02545%	
			Sodium tetraborate decahydrate	1303-96-4	0.03986%	0.01527%	
			Decyl-dimethyl amine oxide	2605-79-0	0.03746%	0.01435%	
			Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.01563%	0.00599%	
			Ethanaminium, N,N,N-trimethyl-2-[(2-methyl-1-oxo-2-propenyl)oxy]-, methyl sulfate, homopolymer	27103-90-8	0.01517%	0.00581%	
			Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.01251%	0.00479%	
			Non-crystalline silica	7631-86-9	0.00961%	0.00368%	
			Ethoxylated propoxylated 4-nonylphenol-formaldehyde resin	30846-35-6	0.00935%	0.00358%	
			Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.00898%	0.00344%	
			Heavy aromatic naphtha	64742-94-5	0.00632%	0.00242%	
			Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.00619%	0.00237%	
			Alcohol, C11-14, ethoxylated	78330-21-9	0.00619%	0.00237%	
			Poly(oxy-1,2-ethanediyl)	25322-68-3	0.00278%	0.00106%	
			Naphtalene (impurity)	91-20-3	0.00126%	0.00048%	
			Magnesium silicate hydrate (talc)	14807-96-6	0.00082%	0.00031%	

			Decyldimethyl amine (impurity)	1120-24-7	0.00060%	0.00023%	
			Hydrogen peroxide (impurity)	7722-84-1	0.00036%	0.00014%	

* 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-4106 (Generated on 6/4/2012 2:16 PM)

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