

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	12/12/2012
State:	California
County:	Kern
API Number:	403048672
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	16E-35R
Longitude:	-119.48119
Latitude:	35.272222
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	4,325
Total Water Volume (gal)*:	178,234

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
Produced Water (Oxy Provided), YF122 Flex	Schlumberger	Activator , Surfactant , Breaker, Stabilizing Agent, Gelling Agent, Crosslinker, Clay Control Agent, Industrial Antimicrobial, Emulsion Preventer, Propping Agent	Water (Including Mix Water Supplied by Client)*	-		71.75728%	
			Crystalline silica	14808-60-7	97.84053%	27.63283%	
			Guar gum	9000-30-0	0.48458%	0.13686%	
			Phenolic resin	9003-35-4	0.46769%	0.13209%	
			Potassium borate	1332-77-0	0.32617%	0.09212%	
			Propan-2-ol	67-63-0	0.17403%	0.04915%	
			2,2',2"-nitrilotriethanol	102-71-6	0.16343%	0.04616%	
			Diammonium peroxodisulphate	7727-54-0	0.13341%	0.03768%	
			Glycerol	56-81-5	0.13071%	0.03692%	
			Potassium hydroxide	1310-58-3	0.10648%	0.03007%	
			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.09237%	0.02609%	
			Polyethylene glycol monohexyl ether	31726-34-8	0.06146%	0.01736%	
			Zirconium dichloride oxide	7699-43-6	0.03725%	0.01052%	
			Crosslinked PO/EO-block polymer	68123-18-2	0.02203%	0.00622%	
			Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.01606%	0.00454%	
			Methanol	67-56-1	0.01368%	0.00386%	
			Poly(dimethylaminoethylmethacrylate) dimethyl sulphate quat.	27103-90-8	0.01155%	0.00326%	
			Non-crystalline silica	7631-86-9	0.00849%	0.00240%	
			Alkyl (c10-c14) alcohols, ethoxylated	66455-15-0	0.00734%	0.00207%	

			Alcohol, C11-14, ethoxylated	78330-21-9	0.00732%	0.00207%	
			Methyl oxirane polymer with oxirane	9003-11-6	0.00725%	0.00205%	
			Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.00717%	0.00203%	
			Diocetyl sulfosuccinate sodium salt	577-11-7	0.00343%	0.00097%	
			Dicoco dimethyl quaternary ammonium chloride	61789-77-3	0.00269%	0.00076%	
			Magnesium silicate hydrate (talc)	14807-96-6	0.00084%	0.00024%	
			Propylene glycol	57-55-6	0.00073%	0.00021%	
			2-ethylhexan-1-ol	104-76-7	0.00010%	0.00003%	
			Potassium oleate	143-18-0	0.00005%	0.00001%	
			Oleic acid	112-80-1	0.00004%	0.00001%	
			Acetic acid, potassium salt	127-08-2	0.00001%	< 0.00001%	
			Acetic acid	64-19-7	< 0.00001%	< 0.00001%	

* 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%

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