

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	2/28/2013
State:	California
County:	Kern
API Number:	04-030-49815
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	354-36S
Longitude:	-119.348327
Latitude:	35.276949
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	9,851
Total Water Volume (gal)*:	95,035

### 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
4% KCl Water (Oxy Provided), HCl 15 , 4% KCl + L65	Schlumberger	Corrosion Inhibitor, Activator , Surfactant , Acid, Breaker, Gelling Agent, Crosslinker, Iron Control Agent, Scale Inhibitor, Industrial Antimicrobial, Chelating Agent, Demulsifier, Emulsion/Sludge Preventer, Emulsion Preventer, Propping Agent, Fluid Loss Additive	Water (Including Mix Water Supplied by Client)*	-		80.99360%	
			Crystalline silica	14808-60-7	91.66910%	17.42300%	
			Hydrogen chloride	7647-01-0	3.45542%	0.65675%	
			Phenolic resin	9003-35-4	1.49929%	0.28496%	
			Guar gum	9000-30-0	1.18068%	0.22440%	
			Potassium borate	1332-77-0	0.51573%	0.09802%	
			Propan-2-ol	67-63-0	0.46023%	0.08747%	
			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.30458%	0.05789%	
			Sodium bromate	7789-38-0	0.21492%	0.04085%	
			Glycerol	56-81-5	0.21059%	0.04003%	
			Potassium hydroxide	1310-58-3	0.16838%	0.03200%	
			Polyethylene glycol monohexyl ether	31726-34-8	0.10794%	0.02052%	
			Diammonium peroxidisulphate	7727-54-0	0.04728%	0.00899%	
			Crosslinked PO/EO-block polymer	68123-18-2	0.03836%	0.00729%	
			Ethane-1,2-diol	107-21-1	0.03572%	0.00679%	
			Methanol	67-56-1	0.03484%	0.00662%	
			Tetrasodium ethylenediaminetetraacetate	64-02-8	0.03451%	0.00656%	

		2-Propenoic acid, polymer with sodium phosphinate	129898-01-7	0.03299%	0.00627%	
		Sodium erythorbate	6381-77-7	0.01612%	0.00306%	
		Fatty acids, tall-oil	61790-12-3	0.01568%	0.00298%	
		Alcohol, C11-14, ethoxylated	78330-21-9	0.01393%	0.00265%	
		Thiourea, polymer with formaldehyde and 1-phenylethanone	68527-49-1	0.01290%	0.00245%	
		Non-crystalline silica	7631-86-9	0.01289%	0.00245%	
		Alkyl (c10-c14) alcohols, ethoxylated	66455-15-0	0.01277%	0.00243%	
		Methyl oxirane polymer with oxirane	9003-11-6	0.01264%	0.00240%	
		Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.01123%	0.00213%	
		Dodecylbenzene sulfonic acid	27176-87-0	0.01033%	0.00196%	
		Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.00967%	0.00184%	
		Sodium chloride	7647-14-5	0.00677%	0.00129%	
		Linear/branched alcohol ethoxylate (11eo)	127036-24-2	0.00673%	0.00128%	
		Alcohols, C14-15, ethoxylated (7EO)	68951-67-7	0.00600%	0.00114%	
		Dioctyl sulfosuccinate sodium salt	577-11-7	0.00597%	0.00113%	
		Dicoco dimethyl quaternary ammonium chloride	61789-77-3	0.00473%	0.00090%	
		Prop-2-yn-1-ol	107-19-7	0.00400%	0.00076%	
		Calcium chloride	10043-52-4	0.00313%	0.00059%	
		Sodium Glycolate (impurity)	2836-32-0	0.00280%	0.00053%	
		2-butoxyethanol	111-76-2	0.00269%	0.00051%	
		Alkenes, C>10 a-	64743-02-8	0.00267%	0.00051%	
		Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.00240%	0.00046%	
		Ethoxylated propoxylated 4-nonylphenol-formaldehyde resin	30846-35-6	0.00179%	0.00034%	
		Propylene glycol	57-55-6	0.00128%	0.00024%	
		Heavy aromatic naphtha	64742-94-5	0.00121%	0.00023%	
		Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.00119%	0.00023%	
		Sodium hydroxide	1310-73-2	0.00111%	0.00021%	
		Trisodium Ethylenediaminetetraacetate (impurity)	150-38-9	0.00093%	0.00018%	
		Disodium Ethylene Diamine Tetra Acetate (impurity)	139-33-3	0.00093%	0.00018%	
		Magnesium silicate hydrate (talc)	14807-96-6	0.00059%	0.00011%	
		Poly(oxy-1,2-ethanediyl)	25322-68-3	0.00053%	0.00010%	
		Trisodium nitrilotriacetate (impurity)	5064-31-3	0.00047%	0.00009%	
		Coco-amido-propylamine oxide	68155-09-9	0.00043%	0.00008%	
		2,2'-oxydiethanol	111-46-6	0.00035%	0.00007%	
		Naphtalene (impurity)	91-20-3	0.00024%	0.00005%	
		Dodecylbenzene (impurity)	123-01-3	0.00022%	0.00004%	
		2-ethylhexan-1-ol	104-76-7	0.00017%	0.00003%	
		Sulfuric acid (impurity)	7664-93-9	0.00013%	0.00003%	
		Potassium oleate	143-18-0	0.00008%	0.00002%	
		Oleic acid	112-80-1	0.00007%	0.00001%	
		Acetic acid, potassium salt	127-08-2	0.00002%	< 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)