

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	2/20/2012
State:	California
County/Parish	Kern County
API Number:	0403044853
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	64EX-3G
Longitude:	-119.381309956589
Latitude:	35.262336993679
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	2,827
Total Water Volume (gal)*:	50,838

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
YF125ST, 15% HCL, MUD ACID	Schlumberger	Corrosion Inhibitor, Activator , Surfactant , Acid, Breaker, Crosslinker, Gelling Agent, Clay Control Agent, Bactericide, Chelating Agent, Demulsifier, Emulsion/Sludge Preventer, Acid Intensifier, Propping Agent	Water (Including Mix Water Supplied by Client)*	-		81.38734%	
			Crystalline silica	14808-60-7	80.85529%	15.04932%	
			Hydrogen chloride	7647-01-0	11.02755%	2.05252%	
			Phenolic resin	9003-35-4	3.36897%	0.62705%	
			Ammonium hydrogendifluoride	1341-49-7	0.79050%	0.14713%	
			Guar gum	9000-30-0	0.67139%	0.12496%	

			Propan-2-ol	Proprietary	0.56599%	0.10535%	
			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.55135%	0.10262%	
			Methanol	67-56-1	0.39079%	0.07274%	
			1, 2, 3 - Propanetriol	56-81-5	0.27696%	0.05155%	
			Diammonium peroxidisulphate	7727-54-0	0.26075%	0.04853%	
			Tetrasodium ethylenediaminetetraacetate	64-02-8	0.16676%	0.03104%	
			Sodium tetraborate decahydrate	1303-96-4	0.16617%	0.03093%	
			Tetramethylammonium chloride	75-57-0	0.13031%	0.02425%	
			Decyl-dimethyl amine oxide	2605-79-0	0.10859%	0.02021%	
			Zirconium dichloride oxide	7699-43-6	0.08644%	0.01609%	
			Fatty acids, tall-oil	61790-12-3	0.07519%	0.01400%	
			Thiourea, polymer with formaldehyde and 1-phenylethanone	68527-49-1	0.06188%	0.01152%	
			Aromatic acid derivative	Proprietary	0.05285%	0.00984%	
			Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.04796%	0.00893%	
			Ethoxylated propoxylated 4-nonylphenol-formaldehyde resin	30846-35-6	0.03585%	0.00667%	
			Ethoxylated alcohol	Proprietary	0.03440%	0.00640%	
			Alcohols, C14-15, ethoxylated (7EO)	68951-67-7	0.02880%	0.00536%	

			Heavy aromatic naphtha	64742-94-5	0.02422%	0.00451%	
			Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.02374%	0.00442%	
			Alcohol, C11-14, ethoxylated	78330-21-9	0.02374%	0.00442%	
			Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.02154%	0.00401%	
			Prop-2-yn-1-ol	107-19-7	0.01920%	0.00357%	
			Non-crystalline silica	7631-86-9	0.01420%	0.00264%	
			Glycol ether	Proprietary	0.01376%	0.00256%	
			Sodium Glycolate (impurity)	2836-32-0	0.01352%	0.00252%	
			Alkenes, C>10 a-	64743-02-8	0.01280%	0.00238%	
			Tetrakis(hydroxymethyl)p hosphonium sulfate	55566-30-8	0.01237%	0.00230%	
			Poly(oxy-1,2-ethanediyl)	25322-68-3	0.01066%	0.00198%	
			Alcohol, C11 linear, ethoxylated	34398-01-1	0.00929%	0.00173%	
			Glycol	Proprietary	0.00688%	0.00128%	
			Alcohol, C9-C11, Ethoxylated	68439-46-3	0.00619%	0.00115%	
			Naphtalene (impurity)	91-20-3	0.00484%	0.00090%	
			Sodium hydroxide	1310-73-2	0.00451%	0.00084%	
			Disodium Ethylene Diamine Tetra Acetate (impurity)	139-33-3	0.00451%	0.00084%	
			Trisodium Ethylenediaminetetraacet	150-38-9	0.00451%	0.00084%	

			ate (impurity)				
			Trisodium nitrilotriacetate (impurity)	5064-31-3	0.00225%	0.00042%	
			Aliphatic amide derivative	Proprietary	0.00220%	0.00041%	
			Decyldimethyl amine (impurity)	1120-24-7	0.00174%	0.00032%	
			Magnesium silicate hydrate (talc)	14807-96-6	0.00113%	0.00021%	
			Dodecylbenzene (impurity)	Proprietary	0.00110%	0.00020%	
			Hydrogen peroxide (impurity)	7722-84-1	0.00104%	0.00019%	
			Sulfuric acid (impurity)	Proprietary	0.00069%	0.00013%	

* 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%

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