

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	6/1/2012
State:	California
County/Parish	Kern County
API Number:	0402989127
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	520-7D
Longitude:	-119.439572
Latitude:	35.151784
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	3,524
Total Water Volume (gal)*:	28,669

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
YF120 - Flex	Schlumberger	Activator , Gelling Agent, Surfactant , Breaker, Crosslinker, Clay Control Agent, Bactericide, Demulsifier, Propping Agent	Water (Including Mix Water Supplied by Client)*	-		81.22065%	
			Crystalline silica	14808-60-7	89.39052%	16.78696%	
			Phenolic resin	9003-35-4	4.60684%	0.86513%	
			Distillates (petroleum), hydrotreated light	64742-47-8	1.75634%	0.32983%	
			Guar gum	9000-30-0	1.66922%	0.31347%	
			Potassium borate	1332-77-0	0.99676%	0.18719%	
			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.89528%	0.16813%	

			Propan-2-ol	67-63-0	0.88252%	0.16573%	
			Methanol	67-56-1	0.48271%	0.09065%	
			Diammonium peroxidisulphate	7727-54-0	0.35792%	0.06721%	
			Glycerol	56-81-5	0.32504%	0.06104%	
			Potassium hydroxide	1310-58-3	0.32502%	0.06104%	
			Decyl-dimethyl amine oxide	2605-79-0	0.12257%	0.02302%	
			Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.08065%	0.01515%	
			Bis(hydrogenated tallow alkyl)dimethylammonium bentonite	68953-58-2	0.06970%	0.01309%	
			Ethoxylated propoxylated 4-nonylphenol-formaldehyde resin	30846-35-6	0.06028%	0.01132%	
			Heavy aromatic naphtha	64742-94-5	0.04072%	0.00765%	
			Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.03992%	0.00750%	
			Alcohol, C11-14, ethoxylated	78330-21-9	0.03992%	0.00750%	
			Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.03778%	0.00709%	
			Cationic polymer	Proprietary	0.02444%	0.00459%	
			Poly(oxy-1,2-ethanediyl)	25322-68-3	0.01792%	0.00337%	
			Alcohols, C12-13, ethoxylated	66455-14-9	0.01739%	0.00327%	
			Non-crystalline silica	7631-86-9	0.01627%	0.00306%	

			Tetrakis(hydroxymethyl)p hosphonium sulfate	55566-30-8	0.01627%	0.00306%	
			Naphtalene (impurity)	91-20-3	0.00814%	0.00153%	
			Magnesium silicate hydrate (talc)	14807-96-6	0.00199%	0.00037%	
			Decyldimethyl amine (impurity)	1120-24-7	0.00196%	0.00037%	
			Hydrogen peroxide (impurity)	7722-84-1	0.00118%	0.00022%	

* 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)