

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	2/9/2012
State:	California
County/Parish	Kern County
API Number:	0402915853
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	511-29B
Longitude:	-119.534604444444
Latitude:	35.2077761111111
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	3,957
Total Water Volume (gal)*:	49,203

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
WF120, YF120ST	Schlumberger	Activator , Breaker, Surfactant , Crosslinker, Gelling Agent, Bactericide, Demulsifier, Propping Agent	Water (Including Mix Water Supplied by Client)*	-		84.66863%	
			Crystalline silica	14808-60-7	92.26258%	14.14512%	
			Guar gum	9000-30-0	2.46796%	0.37837%	
			Phenolic resin	9003-35-4	1.88291%	0.28868%	
			Propan-2-ol	67-63-0	1.05967%	0.16246%	
			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	1.01532%	0.15566%	
			Diammonium peroxodisulphate	7727-54-0	0.35505%	0.05443%	
			1, 2, 3 - Propanetriol	56-81-5	0.25142%	0.03855%	

			Methanol	67-56-1	0.20906%	0.03205%	
			Decyl-dimethyl amine oxide	2605-79-0	0.16976%	0.02603%	
			Sodium tetraborate decahydrate	1303-96-4	0.15085%	0.02313%	
			Polyvinylidene chloride	9002-85-1	0.05916%	0.00907%	
			Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.03716%	0.00570%	
			Ethoxylated propoxylated 4-nonylphenol-formaldehyde resin	30846-35-6	0.02777%	0.00426%	
			Non-crystalline silica	7631-86-9	0.02286%	0.00351%	
			Heavy aromatic naphtha	64742-94-5	0.01876%	0.00288%	
			Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.01839%	0.00282%	
			Alcohol, C11-14, ethoxylated	78330-21-9	0.01839%	0.00282%	
			Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.01614%	0.00247%	
			Poly(oxy-1,2-ethanediyl)	25322-68-3	0.00826%	0.00127%	
			Naphtalene (impurity)	91-20-3	0.00375%	0.00057%	
			Decyldimethyl amine (impurity)	1120-24-7	0.00271%	0.00042%	
			Hydrogen peroxide (impurity)	7722-84-1	0.00163%	0.00025%	
			Magnesium silicate hydrate (talc)	14807-96-6	0.00148%	0.00023%	

* 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)