

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	1/29/2012
State:	California
County/Parish	Kern County
API Number:	0402989128
Operator Name:	OXY USA ELK HILLS
Well Name and Number:	521A-7D
Longitude:	-119.439331
Latitude:	35.151797
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	3800
Total Water Volume (gal)*:	32,621

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
YF120ST, WF120	Schlumberger	Activator , Surfactant , Breaker, Crosslinker, Gelling Agent, Clay Control Agent, Bactericide, Demulsifier, Propping Agent	Water (Including Mix Water Supplied by Client)*	-		74.42162%	
			Crystalline silica	14808-60-7	94.39139%	24.14379%	
			Phenolic resin	9003-35-4	1.92635%	0.49273%	
			Guar gum	9000-30-0	0.87273%	0.22323%	
			Propan-2-ol	67-63-0	0.75540%	0.19322%	
			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.74780%	0.19128%	
			Methanol	67-56-1	0.30130%	0.07707%	
			Diammonium peroxidisulphate	7727-54-0	0.25864%	0.06616%	

			1, 2, 3 - Propanetriol	56-81-5	0.24974%	0.06388%	
			Sodium tetraborate decahydrate	1303-96-4	0.14984%	0.03833%	
			Decyl-dimethyl amine oxide	2605-79-0	0.10926%	0.02795%	
			Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.05051%	0.01292%	
			Ethoxylated propoxylated 4-nonylphenol-formaldehyde resin	30846-35-6	0.03775%	0.00966%	
			Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.03351%	0.00857%	
			Heavy aromatic naphtha	64742-94-5	0.02550%	0.00652%	
			Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.02500%	0.00639%	
			Alcohol, C11-14, ethoxylated	78330-21-9	0.02500%	0.00639%	
			Poly(dimethylaminoethyl methacrylate dimethyl sulfate quat)	Proprietary	0.01445%	0.00370%	
			Non-crystalline silica	7631-86-9	0.01200%	0.00307%	
			Poly(oxy-1,2-ethanediyl)	25322-68-3	0.01122%	0.00287%	
			Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.00962%	0.00246%	
			Naphtalene (impurity)	91-20-3	0.00510%	0.00130%	
			Magnesium silicate hydrate (talc)	14807-96-6	0.00176%	0.00045%	
			Decyldimethyl amine (impurity)	1120-24-7	0.00175%	0.00045%	

			Hydrogen peroxide (impurity)	7722-84-1	0.00105%	0.00027%	
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* 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)