

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	1/10/2012
State:	California
County/Parish	Kern County
API Number:	0403043102
Operator Name:	OXY USA ELK HILLS
Well Name and Number:	45E-34R
Longitude:	-119.49093427159
Latitude:	35.2741176240779
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	2575
Total Water Volume (gal)*:	213,524

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
YF130ST	Schlumberger	Activator , Breaker, Surfactant , Crosslinker, Gelling Agent, Clay Control Agent, Bactericide, Demulsifier, Propping Agent	Water (Including Mix Water Supplied by Client)*	-		70.66013%	
			Crystalline silica	14808-60-7	96.69676%	28.37070%	
			Diammonium peroxidisulphate	7727-54-0	1.38806%	0.40726%	
			Guar gum	9000-30-0	0.62931%	0.18464%	
			Polyvinylidene chloride	9002-85-1	0.58050%	0.17032%	
			Phenolic resin	9003-35-4	0.46645%	0.13686%	
			1, 2, 3 - Propanetriol	56-81-5	0.28233%	0.08284%	
			Sodium tetraborate decahydrate	1303-96-4	0.16940%	0.04970%	

			Methanol	67-56-1	0.13101%	0.03844%	
			Decyl-dimethyl amine oxide	2605-79-0	0.06091%	0.01787%	
			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.05874%	0.01723%	
			Propan-2-ol	67-63-0	0.04012%	0.01177%	
			Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.02171%	0.00637%	
			Zirconium dichloride oxide	7699-43-6	0.01796%	0.00527%	
			Ethoxylated propoxylated 4-nonylphenol-formaldehyde resin	30846-35-6	0.01623%	0.00476%	
			Magnesium silicate hydrate (talc)	14807-96-6	0.01450%	0.00425%	
			Non-crystalline silica	7631-86-9	0.01145%	0.00336%	
			Heavy aromatic naphtha	64742-94-5	0.01096%	0.00322%	
			Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.01074%	0.00315%	
			Alcohol, C11-14, ethoxylated	78330-21-9	0.01074%	0.00315%	
			Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.00973%	0.00286%	
			Poly(dimethylamoniethyl methacrylate dimethyl sulfate quat)	27103-90-8	0.00749%	0.00220%	
			Poly(oxy-1,2-ethanediyl)	25322-68-3	0.00482%	0.00142%	
			Naphtalene (impurity)	91-20-3	0.00219%	0.00064%	
			Decyldimethyl amine (impurity)	1120-24-7	0.00097%	0.00029%	

			Hydrogen peroxide (impurity)	7722-84-1	0.00058%	0.00017%	
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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)