

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	1/4/2012
State:	California
County/Parish	Kern County
API Number:	0403005403
Operator Name:	Occidental Oil & Gas
Well Name and Number:	745-20B
Longitude:	-119.528154166667
Latitude:	35.2113158333333
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	4332
Total Water Volume (gal)*:	43,519

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
WF125, YF125ST	Schlumberger	Surfactant , Breaker, Crosslinker, Gelling Agent, Clay Control Agent, Bactericide, Demulsifier, Propping Agent	Water (Including Mix Water Supplied by Client)*	-		77.30285%	
			Crystalline silica	14808-60-7	98.18693%	22.28563%	
			Guar gum	9000-30-0	1.03594%	0.23513%	
			Methanol	67-56-1	0.20334%	0.04615%	
			Phenolic resin	9003-35-4	0.15470%	0.03511%	
			Diammonium peroxidisulphate	7727-54-0	0.13410%	0.03044%	
			Decyl-dimethyl amine oxide	2605-79-0	0.09489%	0.02154%	
			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.03347%	0.00760%	

			Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.03347%	0.00760%	
			1, 2, 3 - Propanetriol	56-81-5	0.03095%	0.00702%	
			Ethoxylated propoxylated 4-nonylphenol-formaldehyde resin	30846-35-6	0.02502%	0.00568%	
			Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.01960%	0.00445%	
			Sodium tetraborate decahydrate	1303-96-4	0.01857%	0.00421%	
			Heavy aromatic naphtha	64742-94-5	0.01690%	0.00384%	
			Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.01657%	0.00376%	
			Alcohol, C11-14, ethoxylated	78330-21-9	0.01657%	0.00376%	
			Non-crystalline silica	7631-86-9	0.01408%	0.00319%	
			Poly(dimethylaminoethyl methacrylate dimethyl sulfate quat)	27103-90-8	0.01268%	0.00288%	
			Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.01125%	0.00255%	
			Poly(oxy-1,2-ethanediyl)	25322-68-3	0.00744%	0.00169%	
			Naphtalene (impurity)	91-20-3	0.00338%	0.00077%	
			Decyldimethyl amine (impurity)	1120-24-7	0.00152%	0.00034%	
			Magnesium silicate hydrate (talc)	14807-96-6	0.00103%	0.00023%	
			Hydrogen peroxide (impurity)	7722-84-1	0.00091%	0.00021%	

* 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)