

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	1/20/2012
State:	California
County/Parish	Kern County
API Number:	0403045925
Operator Name:	Occidental Oil & Gas
Well Name and Number:	4-1-27B
Longitude:	-119.49228338697
Latitude:	35.2091869384293
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	2,352
Total Water Volume (gal)*:	192,240

### 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	Schlumberger	Activator , Surfactant , Breaker, Crosslinker, Gelling Agent, Clay Control Agent, Bactericide, Demulsifier, Propping Agent	Water (Including Mix Water Supplied by Client)*	-		70.85871%	
			Crystalline silica	14808-60-7	97.49946%	28.41260%	
			Phenolic resin	9003-35-4	0.70428%	0.20524%	
			Guar gum	9000-30-0	0.50979%	0.14856%	
			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.20856%	0.06078%	
			Propan-2-ol	67-63-0	0.20067%	0.05848%	
			1, 2, 3 - Propanetriol	56-81-5	0.17354%	0.05057%	
			Methanol	67-56-1	0.14510%	0.04228%	

			Diammonium peroxidisulphate	7727-54-0	0.13171%	0.03838%	
			Sodium tetraborate decahydrate	1303-96-4	0.10412%	0.03034%	
			Non-crystalline silica	7631-86-9	0.07470%	0.02177%	
			Tetrakis(hydroxymethyl)p hosphonium sulfate	55566-30-8	0.07331%	0.02136%	
			Decyl-dimethyl amine oxide	2605-79-0	0.06767%	0.01972%	
			Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.02333%	0.00680%	
			Ethoxylated propoxylated 4-nonylphenol-formaldehy de resin	30846-35-6	0.01744%	0.00508%	
			Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.01742%	0.00508%	
			Heavy aromatic naphtha	64742-94-5	0.01178%	0.00343%	
			Cationic polymer	Proprietary	0.01168%	0.00340%	
			Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.01155%	0.00336%	
			Alcohol, C11-14, ethoxylated	78330-21-9	0.01155%	0.00336%	
			Poly(oxy-1,2-ethanediyl)	25322-68-3	0.00518%	0.00151%	
			Naphtalene (impurity)	91-20-3	0.00235%	0.00069%	
			Decyldimethyl amine (impurity)	1120-24-7	0.00108%	0.00032%	
			Magnesium silicate hydrate (talc)	14807-96-6	0.00092%	0.00027%	
			Hydrogen peroxide	7722-84-1	0.00065%	0.00019%	

			(impurity)				
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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)