

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	1/11/2012
State:	California
County/Parish	Kern County
API Number:	0403043361
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	72NE-30S
Longitude:	-119.431577960093
Latitude:	35.2949354672377
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	3,142
Total Water Volume (gal)*:	29,224

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
15% HCL, MUD ACID YF125ST	Schlumberger	Surfactant , Acid, Breaker, Crosslinker, Gelling Agent, Clay Control Agent, Iron Control Agent, Bactericide, Chelating Agent, Demulsifier, Emulsion/Sludge Preventer, Acid Intensifier, Propping Agent	Water (Including Mix Water Supplied by Client)*	-		83.86787%	
			Crystalline silica	14808-60-7	92.83626%	14.97647%	
			Hydrochloric acid	7647-01-0	2.38801%	0.38524%	
			Phenolic resin	9003-35-4	1.89462%	0.30564%	
			Guar gum	9000-30-0	1.01701%	0.16407%	
			1, 2, 3 - Propanetriol	56-81-5	0.38354%	0.06187%	
			Methanol	67-56-1	0.30999%	0.05001%	

			Diammonium peroxidisulphate	7727-54-0	0.30483%	0.04918%	
			Sodium tetraborate decahydrate	1303-96-4	0.23013%	0.03712%	
			Ammonium hydrogendifluoride	1341-49-7	0.17266%	0.02785%	
			Zirconium dichloride oxide	7699-43-6	0.05959%	0.00961%	
			Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.05424%	0.00875%	
			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.05424%	0.00875%	
			Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.04455%	0.00719%	
			Ethoxylated propoxylated 4-nonylphenol-formaldehyde resin	30846-35-6	0.04055%	0.00654%	
			Tetrasodium ethylenediaminetetraacetate	64-02-8	0.03449%	0.00556%	
			Heavy aromatic naphtha	64742-94-5	0.02739%	0.00442%	
			Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.02685%	0.00433%	
			Alcohol, C11-14, ethoxylated	78330-21-9	0.02685%	0.00433%	
			Sodium erythorbate	6381-77-7	0.01705%	0.00275%	
			Non-crystalline silica	7631-86-9	0.01556%	0.00251%	
			Aromatic acid derivative	Proprietary	0.01366%	0.00220%	
			Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.01279%	0.00206%	

			Poly(oxy-1,2-ethanediyl)	25322-68-3	0.01205%	0.00194%	
			Ethoxylated alcohol	Proprietary	0.00889%	0.00143%	
			Naphtalene (impurity)	91-20-3	0.00547%	0.00088%	
			Aliphatic alcohol	Proprietary	0.00534%	0.00086%	
			Glycol ether	Proprietary	0.00356%	0.00057%	
			Sodium Glycolate (impurity)	2836-32-0	0.00280%	0.00045%	
			Alcohol, C11 linear, ethoxylated	34398-01-1	0.00240%	0.00039%	
			Magnesium silicate hydrate (talc)	14807-96-6	0.00234%	0.00038%	
			Glycol	Proprietary	0.00178%	0.00029%	
			Alcohol, C9-C11, Ethoxylated	68439-46-3	0.00160%	0.00026%	
			Sodium hydroxide	1310-73-2	0.00093%	0.00015%	
			Disodium Ethylene Diamine Tetra Acetate (impurity)	139-33-3	0.00093%	0.00015%	
			Trisodium Ethylenediaminetetraacetate (impurity)	150-38-9	0.00093%	0.00015%	
			Aliphatic amide derivative	Proprietary	0.00057%	0.00009%	
			Trisodium nitrilotriacetate (impurity)	5064-31-3	0.00047%	0.00008%	
			Dodecylbenzene (impurity)	Proprietary	0.00028%	0.00005%	
			Sulfuric acid (impurity)	Proprietary	0.00018%	0.00003%	

* 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%

Report ID: RPT-3621 (Generated on 5/9/2012 3:52 PM)

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)