

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	4/3/2013
State:	Texas
County:	McMullen County
API Number:	42-311-35188
Operator Name:	Sundance Energy (USA)
Well Name and Number:	Hoskins EFS 4H
Longitude:	-98.494417
Latitude:	28.499819
Long/Lat Projection:	NAD27
Production Type:	Oil
True Vertical Depth (TVD):	11200 (ft)
Total Water Volume* (gal):	7920689 (gal)

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
Water	Sundance Energy (USA)	Carrier / Base Fluid	Carrier / Base Fluid - Water		100.00%	89.21346%	
Econoprop 20/40 (2.7 sg)	WFT	Proppant	Mullite (Aluminum Silicate)	1302-93-8	85.00%	3.46329%	
			Silica Crystalline-Cristobalite	14464-46-1	20.00%	0.81489%	
			Silicon Dioxide, (amorphous as glass)	7631-86-9	35.00%	1.42606%	
Ottawa Sand 40/70 (2.63 sg)	WFT	Proppant	Crystalline Silica in the form of Quartz	14808-60-7	100.00%	3.84279%	
Super LC 20/40 (2.51 sg)	WFT	Proppant	Crystalline Silica (Quartz)	14808-60-7	72.98%	0.37354%	
			Formaldehyde	50-00-0	0.01%	0.00005%	
			Hexamethylenetetramine	100-97-0	1.00%	0.00512%	
			Hydrated Aluminum Silicate	1332-58-7	5.00%	0.02559%	
			Iron Oxide (fume)	1309-37-1	15.00%	0.07678%	
			Phenol	108-95-2	0.01%	0.00005%	
			Phenol-Formaldehyde Resin	9003-35-4	6.00%	0.03071%	
WBK-133	WFT	Breaker	Ammonium Persulfate	7727-54-0	100.00%	0.00010%	
Bio-Clear® 5000	WFT	Bactericide	2,2-dibromo-3-nitriopropionamide	10222-01-2	5.00%	0.00165%	
			Polyethylene Glycol	25322-68-3	50.00%	0.01654%	
WBK-143L	WFT	Breaker	Potassium chloride	7447-40-7	15.00%	0.00949%	
			Sodium chlorite	7758-19-2	15.00%	0.00949%	
WZZ-905L	WFT	Breaker	Cupric Chloride	747-39-4	15.00%	0.00075%	
			Sodium Chloride	7647-14-5	15.00%	0.00075%	
WCS-631LC	WFT	Clay Control	No ingredients as hazardous according to OSHA 29 CFR 1910.1200		0.00%	0.00000%	
WXL-101LM	WFT	Crosslink Control	Distillates petroleum, hydrotreated light	64742-47-8	60.00%	0.02009%	
WXL-105L	WFT	Crosslink Control	Boric acid	10043-35-3	15.00%	0.00110%	
			Ethylene glycol	107-21-1	40.00%	0.00292%	
			Monoethanolamine	141-43-5	5.00%	0.00037%	
WFR-55LA (W)	WFT	Friction Reducers	No ingredients as hazardous according to OSHA 29 CFR 1910.1200		0.00%	0.00000%	
WGA-15L	WFT	Gelling Agents	Petroleum Distillates	64742-47-8	60.00%	0.18783%	
WAI-251LC	WFT	Inhibitor	1-Decanol	112-30-1	5.00%	0.00033%	
			1-Octanol	111-87-5	5.00%	0.00033%	
			2-Butoxyethanol	111-76-2	10.00%	0.00065%	
			Ethoxylated Nonylphenol	68412-54-4	5.00%	0.00033%	
			Ethylene Glycol	111-76-2	40.00%	0.00261%	
			Isopropyl Alcohol	67-63-0	5.00%	0.00033%	
			N,N-Dimethylformamide	68-12-2	20.00%	0.00131%	
			Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7	10.00%	0.00065%	
			Triethylphosphate	78-40-0	5.00%	0.00033%	
WII-270L	WFT	Inhibitor	1,2-propylene glycol	57-55-6	60.00%	0.00426%	
			Antimony potassium oxide	29638-69-5	60.00%	0.00426%	
			Potassium acetate	127-08-2	2.00%	0.00014%	
WSI-681L	WFT	Inhibitor	No ingredients as hazardous according to OSHA 29 CFR 1910.1200		0.00%	0.00000%	
WIC-641L	WFT	Iron Control	Citric acid	77-92-9	60.00%	0.00542%	
WPB-584L	WFT	ph Adjusting Agents	Potassium Carbonate	584-08-7	40.00%	0.02335%	
			Potassium Hydroxide	1310-58-3	20.00%	0.01167%	

WNE-363L	WFT	Surfactant	2-Ethylhexanol	104-76-7	7.00%	0.00660%	
			DB-964	9003-11-6	30.00%	0.02830%	
			Dodecylbenzenesulfonic acid, monoethanolamine salt	26836-07-7	15.00%	0.01415%	
			Poly(oxy-1,2-ethanediyl), a-isotridecyl-w-hydroxy-	9043-30-5	5.00%	0.00472%	
15% HCL	WFT	Acid	Hydrochloric Acid	7647-01-0	15.00%	0.23151%	
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
			2-BUTENEDIAMIDE, (E)-, N,N'-BIS[2-(4,5-DIHYDRO-2-NORTALL OIL ALKYL-1H-IMIDAZOL-1-YL)ETHYL] DERIVATIV	68442-77-3		0.00167%	
			2-Butoxyethanol	111-76-2		0.00347%	
			Acetaldehyde	75-07-0		0.00007%	
			Alcohol Ethoxylate	Mixture		0.00347%	
			Alcohols, C12-16, Ethoxylated	68551-12-2		0.00347%	
			Anionic water soluble polymer	Mixture		0.01917%	
			Arlacel 83	8007-43-0		0.00313%	
			Choline Chloride	67-48-1		0.06859%	
			Cinnamaldehyde	104-55-2		0.00033%	
			Crystalline Silica in the form of Quartz	14808-60-7		0.00313%	
			Deionized Water	7732-18-5		0.06085%	
			Dioxane	123-91-1		0.00007%	
			Distilled Tall-Oil Fatty Acids	61790-12-3		0.00167%	
			Ethylene Oxide	75-21-8		0.00007%	
			Guar gum	9000-30-0		0.15652%	
			Proprietary Ingredient	Proprietary		0.07028%	
			Propylene carbonate	108-32-7		0.00033%	
			Quaternary ammonium compounds, bis(hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2		0.00167%	
			Sodium chloride	7647-14-5		0.01266%	
			Sodium Polyacrylate	903-04-7		0.01071%	
			Ulexite Powder	1334256		0.02009%	
			Water / Inerts	7732-18-5		0.00439%	

*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%

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