

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/5/2013
Job End Date:	4/8/2013
State:	Pennsylvania
County:	Sullivan
API Number:	37-113-20152-00-00
Operator Name:	Chesapeake Operating, Inc.
Well Name and Number:	BURKHART N SUL 4H
Longitude:	-76.51151400
Latitude:	41.53170300
Datum:	NAD27
Federal/Tribal Well:	NO
Total Base Water Volume (gal):	5,350,842
Total Base Non Water Volume:	321,205



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
Fresh Water	CHESAPEAKE ENERGY	Carrier/Base Fluid					
			Water	007732-18-5	100.00000	84.36245	
Northern White Sand	PUMPCO	Proppant - Natural					
			Crystalline Silica (Quartz Sand, Silicon Dioxide)	014808-60-7	100.00000	11.60949	
Recycled Produced Water	CHESAPEAKE ENERGY	Carrier/Base Fluid					
			Water	007732-18-5	100.00000	2.39490	
100 Mesh Sand	PUMPCO	Proppant - Natural					
			Crystalline Silica (Quartz Sand, Silicon Dioxide)	014808-60-7	100.00000	1.23688	
Acid HCL	PUMPCO	Acid					
			Water	007732-18-5	85.00000	0.26313	
			Hydrochloric Acid	007647-01-0	15.00000	0.04644	
SFR-470	X CHEM	Friction Reducer					
			Petroleum Distillate Hydrotreated Light	064742-47-8	35.00000	0.00696	
			Quaternary Ammonium Chloride (Ammonium Chloride)	012125-02-9	15.00000	0.00298	
			Ethoxylated Alcohol	068439-50-9	5.00000	0.00099	
			Alcohols ethoxylated C12-16	068551-12-2	5.00000	0.00099	
			Alcohol ethoxylate C-10/16 with 6.5 EO	068002-97-1	5.00000	0.00099	

B84	X CHEM	Anti-Bacterial Agent					
			Glutaraldehyde (Pentanediol)	000111-30-8	27.00000	0.00720	
			Didecyl Dimethyl Ammonium Chloride	007173-51-5	8.00000	0.00213	
			Quaternary Ammonium Compound	068424-85-1	6.00000	0.00147	
			Ethanol	000064-17-5	4.00000	0.00107	
SFR-451	X CHEM	Friction Reducer					
			Petroleum Distillate Hydrotreated Light	064742-47-8	35.00000	0.00999	
			Ammonium Acetate	000631-61-8	6.00000	0.00171	
SC30	X CHEM	Scale Inhibitor					
			Sodium Polyacrylate	009003-04-7	100.00000	0.00878	
Ferriplex 40	PUMPCO	Iron Control Agent					
			Water	007732-18-5	60.00000	0.00111	
			Trisodium Nitrilotriacetate	005064-31-3	40.00000	0.00074	
			Sodium Sulfate	007757-82-6	2.00000	0.00004	
			Sodium Hydroxide	001310-73-2	1.00000	0.00002	
Plexhib 256	PUMPCO	Corrosion Inhibitor					
			Methanol (Methyl Alcohol)	000067-56-1	60.00000	0.00028	
			Modified Thiourea Polymer	068527-49-1	30.00000	0.00014	
			Ethoxylated Alcohols^ C14-15	068951-67-7	30.00000	0.00014	
			Propargyl Alcohol (2-Propynol)	000107-19-7	10.00000	0.00005	
			Alkenes^ C>10 alpha-	064743-02-8	5.00000	0.00002	
Plexbreak 145	PUMPCO	Non-Emulsifier					
			Water	007732-18-5	65.00000	0.00033	
			2-Butoxyethanol (Ethylene Glycol Monobutyl Ether)	000111-76-2	15.00000	0.00008	
			Methanol (Methyl Alcohol)	000067-56-1	15.00000	0.00008	
			Coconut oil, Diethanolamide	068603-42-9	10.00000	0.00005	
			Diethanolamine	000111-42-2	2.00000	0.00001	
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.							
B84, SC30, SFR-451, SFR-470	X CHEM	Anti-Bacterial Agent, Friction Reducer, Scale Inhibitor					
			Water	007732-18-5		0.08285	
			Proprietary Surfactant	TRADE SECRET		0.04218	
			Sorbitan Monooleate	001338-43-8		0.04218	
			Ethoxylated Alcohol	068439-50-9		0.02620	
			Polypropenamide	910644-97-2		0.02620	
			Alcohols ethoxylated C12-16	068551-12-2		0.02620	
			Alcohol ethoxylate C-10/16 with 6.5 EO	068002-97-1		0.02620	
			Ethoxylated Oleylamine	026635-93-8		0.02620	
			Polyethylene Glycol Monooleate	009004-96-0		0.01598	
			Sorbitol Tetraoleate	061723-83-9		0.01598	
			Alcohols, C12-C14-Secondary, Ethoxylated	084133-50-6		0.01598	

		Polyacrylamide (Acrylamide, Ammonium Acrylate Copolymer)	026100-47-0		0.01598	
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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%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

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