

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	7/25/2011
State:	COLORADO
County:	WELD
API Number:	0512333328
Operator Name:	CHESAPEAKE
Well Name and Number:	CASS 7-62 15-1H
Longitude:	-104.30446
Latitude:	40.57996
Long/Lat Projection:	NAD27
Production Type:	GAS
True Vertical Depth (TVD):	6,604
Total Water Volume (gal)**:	2,746,044

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		Carrier/Base Fluid				83.95767%	
Sand (Proppant)		Proppant				13.41483%	
15% HCl Acid	CALFRAC	Acid	Water	007732-18-5	85.00%	1.57175%	
			Hydrochloric Acid	007647-01-0	15.00%	0.27737%	
DAP-923	CALFRAC	Corrosion Inhibitor	Methanol (Methyl Alcohol)	000067-56-1	60.00%	0.00139%	
			Ethoxylated Alcohols^ C14-15	068951-67-7	30.00%	0.00069%	
			Modified Thiourea Polymer	068527-49-1	30.00%	0.00069%	
			Tall Oil Fatty Acids	061790-12-3	30.00%	0.00069%	
			Propargyl Alcohol (2-Propynol)	000107-19-7	10.00%	0.00023%	
			Alkenes^ C>10 alpha-	064743-02-8	5.00%	0.00012%	
DWP-990	CALFRAC	Breaker	Ammonium Persulfate	007727-54-0	100.00%	0.12499%	
			Cured acrylic resin	N/A	32.00%	0.04000%	
DWP-937	CALFRAC	Non-Emulsifier	Citrus Terpenes	094266-47-4	60.00%	0.04700%	
			Isopropanol (Isopropyl Alcohol, Propan-2-ol)	000067-63-0	20.00%	0.01567%	
			Triethylene glycol	000112-27-6	20.00%	0.01567%	
DWP-944	CALFRAC	Anti-Bacterial Agent	Polyethylene Glycol	025322-68-3	70.00%	0.02795%	
			2,2-Dibromo-3-Nitriopropionamide	010222-01-2	40.00%	0.01597%	
DWP-204	CALFRAC	pH Adjusting Agent	Formic Acid	000064-18-6	13.00%	0.00948%	
DWP-903	CALFRAC	Breaker	Ethylene Glycol	000107-21-1	30.00%	0.00620%	

			Hemicellulase Enzyme	009012-54-8	1.00%	0.00021%	
DWP-211	CALFRAC	Gelling Agent	No Hazardous Components	NONE		0.00000%	
DWP-621	CALFRAC	Friction Reducer	No Hazardous Components	NONE		0.00000%	
DWP-913	CALFRAC	Clay Stabilizer	No Hazardous Components	NONE		0.00000%	

* 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%

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.