

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	11/15/2014
Job End Date:	11/24/2014
State:	North Dakota
County:	Dunn
API Number:	33-025-02400-00-00
Operator Name:	Occidental Oil and Gas
Well Name and Number:	VELENCHENKO 2-4-9H-143-97
Longitude:	-102.98566389
Latitude:	47.24266944
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	10,784
Total Base Water Volume (gal):	4,399,632
Total Base Non Water Volume:	22,749



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	Customer	Carrier					
			Water	7732-18-5	100.00000	93.72963	
Econoprop, 30/50 mesh	Trican	Proppant					
			mullite	1302-93-8	85.00000	2.85163	
			Silica	7631-86-9	35.00000	1.17420	
			silica crystalline-cristobalite	14464-46-1	20.00000	0.67097	
Econoprop 40/70	Trican	Proppant					
			mullite	1302-93-8	85.00000	1.76735	
			Silica	7631-86-9	35.00000	0.72773	
			silica crystalline-cristobalite	14464-46-1	20.00000	0.41585	
15% HCL	Trican	Carrier					
			Hydrochloric acid	7647-01-0	15.00000	0.07779	
FR-15 (Friction Reducer)	Trican	Friction Reducer					
			Mineral oil/ light hydrotreated pet. distillate	64742-47-8	25.00000	0.02232	
			Alcohols, C12-16, ethoxylated	68551-12-2	5.00000	0.00446	
			Proprietary Amide	Proprietary	2.50000	0.00223	
Bio Clear 5000 (Biocide)	Trican	Biocide					

			Polyethylene glycol	25322-68-3	70.00000	0.01855	
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	10.00000	0.00265	
LSI-21 (Scale Inhibitor)	Trican	Scale Inhibitor					
			Sodium Salt of Phosphate Ester	68131-72-6	15.00000	0.00780	
			Acrylic Polymer	28205-96-1	15.00000	0.00780	
WXB-15 (Borate Crosslinker)	Trican	Crosslinker					
			Petroleum distillate blend	64742-96-7	47.72000	0.00924	
S-17 (Surfactant)	Trican	Surfactant					
			Ethylene/propylene oxide polymer	Proprietary	7.00000	0.00336	
			Amine sulfonate	Proprietary	4.90000	0.00235	
			2-Ethylhexanol	104-76-7	2.10000	0.00101	
			alcohols, C11-14-iso, C13- rich ethoxylates	78330-21-9	1.00000	0.00048	
pH-15 (pH Buffer)	Trican	pH Buffer					
			Potassium carbonate	584-08-7	31.96000	0.00506	
			Potassium hydroxide	1310-58-3	13.05000	0.00207	
PH-2	Trican	pH Buffer					
			Acetic acid	64-19-7	60.00000	0.00443	
FEAC-20 (Iron Control)	Trican	Iron Control					
			Acetic acid	64-19-7	45.00000	0.00103	
			Citric acid	77-92-9	30.00000	0.00069	
WBO-2 (Breaker)	Trican	Breaker					
			Sodium Persulfate	7775-27-1	100.00000	0.00163	
WBA-2 (Breaker Accelerator)	Trican	Breaker Aid					
			Copper chloride	10125-13-0	10.00000	0.00148	
WBO-11	Trican	Breaker					
			Sodium chlorite	7758-19-2	2.50000	0.00031	
AI-7NR (Acid Inhibitor)	Trican	Acid Inhibitor					
			Prop-2-yn-1-ol	107-19-7	1.00000	0.00002	
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.							
N/A	N/A	Other Chemicals					
			polydimethylsiloxane	63148-62-9			
			ethoxylated alcohol, C11-14-iso	78330-21-9			
			Water	7732-18-5			
			guar gum	9000-30-0			
			Fatty acids	61790-12-3			
			Sorbitan monooleate	1338-43-8			
			Ulexite	1319-33-1			
			Tallow alkylldimethylammonium chloride/bentonite complex	71011-25-1			
			modified amidoamine	68990-47-6			
			Copolymer of acrylamide-AETAC	69418-26-4			
			2-butoxyethanol	111-76-2			

			Sodium Chloride	7647-14-5			
			Trade Secret	Proprietary			
			Silica, Amorphous	112926-00-8			
			propylene carbonate	108-32-7			
			methylcellulose	9004-67-5			
			Potassium chloride	7447-40-7			
			Trade Secret Ingredient	Proprietary			

* 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)