

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/23/2013
Job End Date:	4/23/2013
State:	Texas
County:	McMullen
API Number:	42-311-35180-00-00
Operator Name:	Murphy Exploration and Production USA
Well Name and Number:	Y-Bar 24H
Longitude:	-98.79136400
Latitude:	28.53490000
Datum:	NAD27
Federal/Tribal Well:	NO
Total Base Water Volume (gal):	9,016,476
Total Base Non Water Volume:	0



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	Operator	Carrier / Base Fluid					
			Water	7732-18-5	100.00000	91.73206	Non-MSDS
Sand Texas Gold, 40/70	FTSI	Proppant					
			Crystalline Silica (Quartz)	14808-60-7	100.00000	4.62414	
Sand Texas Gold, 30/50	FTSI	Proppant					
			Crystalline Silica (Quartz)	14808-60-7	100.00000	2.32234	
Sand Texas Gold, 100M	FTSI	Proppant					
			Crystalline Silica (Quartz)	14808-60-7	100.00000	0.68514	
10.1% - 15% HCL	FTSI	Acid					
			Water	7732-18-5	85.00000	0.32865	Non-MSDS
			Hydrogen Chloride	7647-01-0	15.00000	0.05800	
FRW-200	FTSI	Friction Reducer					
			Water	7732-18-5	48.00000	0.04672	Non-MSDS
			Copolymer of acrylamide and sodium acrylate	25987-30-8	33.00000	0.03212	Non-MSDS
			Petroleum distillate hydrotreated light	64742-47-8	26.00000	0.02531	
			Acrylamide P/W acrylic acid, ammonium salt	26100-47-0	25.00000	0.02433	Non-MSDS
			Ammonium Chloride	12125-02-9	12.00000	0.01168	Non-MSDS

			Surfactant	Proprietary	7.00000	0.00681	Non-MSDS. Contact for all proprietary components is: Shawn Stroman; FTS International; 777 Main Street Suite 3000; FT. Worth, TX 76102; 817-339-3562
			Alcohols (C10-C16), ethoxylated	68002-97-1	4.00000	0.00389	Non-MSDS
			Alcohols (C12-C14), ethoxylated	68439-50-9	4.00000	0.00389	Non-MSDS
			Alcohols (C12-C16), ethoxylated	68551-12-2	4.00000	0.00389	Non-MSDS
			Polyethylene glycol monooleate	9004-96-0	3.00000	0.00292	Non-MSDS
			Sorbitan Monooleate	1338-43-8	3.00000	0.00292	Non-MSDS
			Sorbitol Tetraoleate	61723-83-9	2.00000	0.00195	Non-MSDS
			Proprietary Component	Proprietary	1.50000	0.00146	Non-MSDS. Contact for all proprietary components is: Shawn Stroman; FTS International; 777 Main Street Suite 3000; FT. Worth, TX 76102; 817-339-3562
			Alkyloxypolyethyleneoxyethanol	84133-50-6	1.00000	0.00097	Non-MSDS
			Ammonium Acrylate	10604-69-0	0.50000	0.00049	Non-MSDS
			Acrylamide	79-06-1	0.10000	0.00010	Non-MSDS
Turquoise-1 - Bulk (HVG01)	FTSI	Water Gelling Agent					
			Petroleum distillate	64742-47-8	55.00000	0.05106	
			Guar gum	9000-30-0	50.00000	0.04642	
			Surfactant	68439-51-0	2.00000	0.00186	
			Clay	14808-60-7	2.00000	0.00186	
			Ethylene glycol monobutyl ether	111-76-2	0.25000	0.00023	Non-MSDS
ICI-3240 (330gal Tote)	FTSI	Biocide					
			Water	7732-18-5	55.00000	0.02262	Non-MSDS
			Dazomet (Tetrahydro-3, 5-dimethyl-2H-1, 3, 5-thiadiazine-2-thione)	533-74-4	24.00000	0.00987	
			Sodium Hydroxide	1310-73-2	23.00000	0.00946	
HT Liquid Breaker (HTLB03)	FTSI	Breaker					
			Water	7732-18-5	90.00000	0.00537	Non-MSDS
			Organic hydroperoxide	75-91-2	15.00000	0.00089	
CI-150	FTSI	Corrosion Inhibitor					
			Ethylene Glycol	107-21-1	30.00000	0.00085	
			Isopropanol	67-63-0	30.00000	0.00085	
			Organic amine resin salt	Proprietary	30.00000	0.00085	Contact for all proprietary components is: Shawn Stroman; FTS International; 777 Main Street Suite 3000; FT. Worth, TX 76102; 817-339-3562

			Alkylene Oxide Block Polymer	Proprietary	10.00000	0.00028	Non-MSDS. Contact for all proprietary components is: Shawn Stroman; FTS International; 777 Main Street Suite 3000; FT. Worth, TX 76102; 817-339-3562
			Aromatic aldehyde	Proprietary	10.00000	0.00028	Contact for all proprietary components is: Shawn Stroman; FTS International; 777 Main Street Suite 3000; FT. Worth, TX 76102; 817-339-3562
			Dimethylformamide	68-12-2	10.00000	0.00028	
			Quaternary ammonium compound	Proprietary	10.00000	0.00028	Contact for all proprietary components is: Shawn Stroman; FTS International; 777 Main Street Suite 3000; FT. Worth, TX 76102; 817-339-3562
			Water	7732-18-5	5.00000	0.00014	Non-MSDS
			Diethylene glycol	111-46-6	1.00000	0.00003	Non-MSDS
			Fatty Acid	Proprietary	0.10000		Non-MSDS. Contact for all proprietary components is: Shawn Stroman; FTS International; 777 Main Street Suite 3000; FT. Worth, TX 76102; 817-339-3562
			Fatty Acid Salt	Proprietary	0.10000		Non-MSDS. Contact for all proprietary components is: Shawn Stroman; FTS International; 777 Main Street Suite 3000; FT. Worth, TX 76102; 817-339-3562
			Aliphatic alcohol	Proprietary	0.10000		Non-MSDS. Contact for all proprietary components is: Shawn Stroman; FTS International; 777 Main Street Suite 3000; FT. Worth, TX 76102; 817-339-3562
FE-100L	FTSI	Iron control					
			Water	7732-18-5	60.00000	0.00117	Non-MSDS
			Citric acid	77-92-9	55.00000	0.00107	
Formic Acid	FTSI	Acid					
			Formic Acid	64-18-6	85.00000	0.00188	
NE-100	FTSI	Non-emulsifier					
			Water	7732-18-5	90.00000	0.00034	Non-MSDS
			2-Propanol	67-63-0	10.00000	0.00004	
			2-Butoxyethanol	111-76-2	10.00000	0.00004	
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00002	
			Sulfur Dioxide	7446-09-5			Non-MSDS

			Unsulphonated Matter	Proprietary	0.03000		Non-MSDS. Contact for all proprietary components is: Shawn Stroman; FTS International; 777 Main Street Suite 3000; FT. Worth, TX 76102; 817-339-3562
			Benzene, C10-16 Alkyl Derivatives	68648-87-3	0.04000		Non-MSDS
			Sulfuric Acid	7664-93-9	0.01000		Non-MSDS

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.

* 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)