

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	1/18/2015
Job End Date:	1/24/2015
State:	Texas
County:	Andrews
API Number:	42-003-46754-00-00
Operator Name:	Greystone Oil & Gas LLP
Well Name and Number:	UNIVERSITY FV 2H
Longitude:	-102.61272000
Latitude:	32.15933000
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	10,500
Total Base Water Volume (gal):	2,559,732
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	Water	7732-18-5	100.00000	86.03707	
Tempered HS, 20/40	Baker Hughes	Proppant	MSDS and Non-MSDS Ingredients Listed Below	N/A		10.03532	
HCl, 10.1 - 15%	Baker Hughes	Acidizing	MSDS and Non-MSDS Ingredients Listed Below	N/A		2.52670	SmartCare Product
GW-3	Baker Hughes	Gelling Agent	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.23931	
GW-4LDF	Baker Hughes	Gelling Agent	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.15705	
Scaletrol 720, 330 gal tote	Baker Hughes	Scale Inhibitor	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.10883	SmartCare Product
BF-9L, 300 gal tote	Baker Hughes	Buffer	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.10320	SmartCare Product
Flo-Back 40, tote	Baker Hughes	Surfactant	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.09965	SmartCare Product

XLW-30G, tote	Baker Hughes	Crosslinker					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.06935	
XLW-4	Baker Hughes	Crosslinker					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.05033	
Enzyme G-II	Baker Hughes	Breaker					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.04345	SmartCare Product
ClayCare, ClayTreat-2C, 330 gl tote	Baker Hughes	Clay Control					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.03926	SmartCare Product
Alpha 114, 260 gl tote	Baker Hughes	Biocide					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.02411	
High Perm CRB	Baker Hughes	Breaker					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.01114	SmartCare Product
Ferrotrol 280L , 330 gl tote	Baker Hughes	Clay Control					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00405	SmartCare Product
NE-35, 330 gl tote	Baker Hughes	Non-emulsifier					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00376	
CI-27	Baker Hughes	Corrosion Inhibitor					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00328	
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.							
Ingredients in Additive (s) (MSDS and non-MSDS)	Baker Hughes	See Trade Name(s) List					
			Silicon Dioxide (Silica Sand)	14808-60-7	97.00000	9.68428	
			Water	7732-18-5	97.00000	2.47760	
			P/F Resin	9003-35-4	5.00000	0.49919	
			Hydrochloric Acid	7647-01-0	15.00000	0.37706	
			Guar Gum	9000-30-0	100.00000	0.33183	
			Mineral Oil	8042-47-5	70.00000	0.10937	
			Potassium Carbonate	584-08-7	60.00000	0.06160	
			Ethylene Glycol	107-21-1	45.00000	0.04872	
			Paraffinic Petroleum Distillate	64742-55-8	30.00000	0.04687	
			Hydrotreated Light Distillate	64742-47-8	30.00000	0.04687	
			Sodium Chloride	7647-14-5	30.00000	0.03084	
			Potassium Hydroxide	1310-58-3	30.00000	0.03080	
			Choline Chloride	67-48-1	75.00000	0.02929	
			Ulexite Mineral	1319-33-1	40.00000	0.02760	
			2-Propenoic, Polymer with Sodium Phosphinate, Sodium Salt	71050-62-9	20.00000	0.02165	
			Potassium Formate	590-29-4	30.00000	0.02070	
			Cocamidopropyl betaine	61789-40-0	20.00000	0.01983	

			Cocamidopropylamide oxide	68155-09-9	20.00000	0.01983
			Sodium Tetraborate	1303-96-4	30.00000	0.01502
			Glycerin	8043-29-6	25.00000	0.01252
			Ammonium Persulphate	7727-54-0	100.00000	0.01109
			Glutaraldehyde	111-30-8	30.00000	0.00720
			Calcium Chloride	10043-52-4	5.00000	0.00541
			2-Mercaptoethanol	60-24-2	100.00000	0.00403
			Vinylidene Chloride-Methyl Acrylate Polymer	25038-72-6	25.00000	0.00277
			Clay	12174-11-7	3.00000	0.00207
			Methanol	67-56-1	60.00000	0.00199
			Cellulose	9004-32-4	2.00000	0.00138
			Hemicellulase Enzyme Concentrate	9025-56-3	3.00000	0.00130
			Quaternary Ammonium Compound	68424-85-1	5.00000	0.00120
			Potassium Chloride	7447-40-7	1.00000	0.00108
			Hexamethylenetetramine	100-97-0	0.01000	0.00100
			Glycerol	56-81-5	1.00000	0.00099
			Fatty Acids	61790-12-3	30.00000	0.00098
			Thiourea Polymer	68527-49-1	30.00000	0.00098
			Polyoxyalkylenes	68951-67-7	30.00000	0.00098
			Nonionic glycol ester	68400-71-5	25.00000	0.00094
			Sodium formaldehyde bisulfate	870-72-4	1.00000	0.00069
			Crystalline Silica Quartz	14808-60-7	1.00000	0.00069
			Sodium glycolate	2836-32-0	1.00000	0.00069
			Sodium chloride	7647-14-5	1.00000	0.00069
			Acrylamide-acrylic acid copolymer, sulfomethylated,	EPA Acct 108431	1.00000	0.00069
			Sodium bisulfate	7681-38-1	1.00000	0.00069
			Propylene Glycol	57-55-6	15.00000	0.00056
			Propargyl Alcohol	107-19-7	10.00000	0.00033
			Cupric Chloride	7447-39-4	5.00000	0.00020
			Ammonium Hydroxide	1336-21-6	5.00000	0.00020
			Olefin	64743-02-8	5.00000	0.00016
			Sodium octylimodlpropionate	94441-92-6	3.00000	0.00011
			Hydrated Magnesium Silicate	14807-96-6	1.00000	0.00011
			Benzenesulfonic acid, hexadecyl (sulfophenoxy)-, disodium salt	65143-89-7	2.00000	0.00007
			Ethanol	64-17-5	0.30000	0.00007
			Poly (Tetrafluoroethylene)	9002-84-0	0.50000	0.00006
			Sodium lauriminodipropionate	14960-06-6	1.00000	0.00004
			Formaldehyde	50-00-0	0.05000	0.00000
			Magnesium chloride	7786-30-3	0.00100	0.00000
			Magnesium nitrate	10377-60-3	0.00100	0.00000
			2-methyl-4-isothiazolin-3-one	2682-20-4	0.00100	0.00000
			5-Chloro-2-methyl-3(2H)-Isothiazolone	26172-55-4	0.00100	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%

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)