

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	10/24/2016
Job End Date:	10/29/2016
State:	Texas
County:	Andrews
API Number:	42-003-46856-00-00
Operator Name:	Ares Energy Ltd
Well Name and Number:	UNIVERSITY 35 6H
Latitude:	32.12587000
Longitude:	-102.64651000
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	4,450
Total Base Water Volume (gal):	417,778
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	87.98191	
Sand, Brown, 16/30	Baker Hughes	Proppant					
				Listed Below			

HCl, 10.1 - 15%	Baker Hughes	Acidizing					
				Listed Below			SmartCare Product
Other Chemical (s)	Baker Hughes	See Trade Name (s) List					
			Water	7732-18-5	85.00000	3.08675	
Preferred Garnet RC 16/30	Baker Hughes	Proppant					
				Listed Below			
Sand, White, 100 mesh	Baker Hughes	Proppant					
				Listed Below			
LiteProp 125C, 14/30	Baker Hughes	Proppant					
				Listed Below			SmartCare Product
Alpha 123	Baker Hughes	Biocide					
				Listed Below			
Ferrotrol 280L , 330 gl tote	Baker Hughes	Clay Control					
				Listed Below			SmartCare Product
GBW-5	Baker Hughes	Breaker					
				Listed Below			SmartCare Product
NE-35, 330 gl tote	Baker Hughes	Non-emulsifier					

				Listed Below			
CI-14	Baker Hughes	Corrosion Inhibitor					
				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Crystalline Silica (Quartz)	14808-60-7	100.00000	5.88861	
			Crystalline Silica, Quartz (SiO2)	14808-60-7	98.00000	1.75001	
			Hydrochloric Acid	7647-01-0	15.00000	0.52118	
			Walnut Shells	84012-43-1	90.00000	0.45464	
			Polyurethane Resin (Castor Oil)	8001-79-4	5.00000	0.08929	
			Copolymer of Acrylamide and Sodium Acrylate	25987-30-8	40.00000	0.04767	
			Hydrotreated Light Distillate	64742-47-8	30.00000	0.03576	
			Phenolic Resin	9003-35-4	5.00000	0.02526	
			Iron Oxide (colorant)	1309-37-1	1.00000	0.01786	
			Sodium Chloride	7647-14-5	15.00000	0.01502	
			2-Mercaptoethanol	60-24-2	100.00000	0.01438	
			Ammonium Persulphate	7727-54-0	100.00000	0.01137	
			Cocamidopropyl betaine	61789-40-0	10.00000	0.01001	
			Cocamidopropylamide oxide	68155-09-9	10.00000	0.01001	
			Glutaraldehyde	111-30-8	30.00000	0.00716	
			Sodium Bis-Tridecyl Sulfosuccinate	2673-22-5	5.00000	0.00596	
			Sorbitan Monooleate	1338-43-8	5.00000	0.00596	
			Ethoxylated Tridecyl Alcohol	78330-21-9	5.00000	0.00596	
			Methanol	67-56-1	100.00000	0.00439	
			Nonionic glycol ester	68400-71-5	25.00000	0.00151	
			Polyoxyalkylenes	68951-67-7	30.00000	0.00132	

			Ethanol	64-17-5	5.00000	0.00119	
			Quaternary Ammonium Compound	68424-85-1	5.00000	0.00119	
			Alkyl Quaternary Compound	7173-51-5	5.00000	0.00119	
			Propylene Glycol	57-55-6	15.00000	0.00090	
			Cupric Chloride	7447-39-4	5.00000	0.00072	
			Ammonium Hydroxide	1336-21-6	5.00000	0.00072	
			Glycerol	56-81-5	0.50000	0.00050	
			Fatty Acids	61790-12-3	10.00000	0.00044	
			Modified Thiourea Polymer	68527-49-1	7.00000	0.00031	
			Propargyl Alcohol	107-19-7	5.00000	0.00022	
			Olefin	64743-02-8	5.00000	0.00022	
			Sodium octylimodpropionate	94441-92-6	3.00000	0.00018	
			Benzenesulfonic acid, hexadecyl (sulfophenoxy)-, disodium salt	65143-89-7	2.00000	0.00012	
			Sodium lauriminodipropionate	14960-06-6	1.00000	0.00006	
			Formaldehyde	50-00-0	1.00000	0.00004	

* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

*** If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

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)