

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/22/2020
Job End Date:	4/29/2020
State:	Texas
County:	Winkler
API Number:	42-495-34454-00-00
Operator Name:	Shell Oil Company affiliate
Well Name and Number:	University 20 PW 2708H
Latitude:	31.69397068
Longitude:	-103.30505315
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	12,051
Total Base Water Volume (gal):	10,069,600
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	Shell Oil Company affiliate	Carrier/Base Fluid	Water	7732-18-5	100.00000	78.20336	
Sand	Shell Oil Company affiliate	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	21.74572	
HiRate™ 690	Innospec Oilfield Services	Friction Reducer	Distillates (petroleum), hydrotreated light	64742-47-8	60.00000	0.02814	
			Isotridecanol, ethoxylated	78330-21-9	4.99000	0.00280	
HCL Acid (12.6%-17.5%)	U.S. Well Services	Bulk Acid	Water	7732-18-5	87.40000	0.01356	
			Hydrogen Chloride	7647-01-0	17.50000	0.00315	
BioSuite GQ123x	Innospec Oilfield Services	Anti-Bacterial Agent	Glutaraldehyde	111-30-8	15.00000	0.00245	
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	5.00000	0.00077	
NE-70	U.S. Well Services	Surfactant					

			DI Water	7732-18-5	90.00000	0.00003	
			Alcohols, C10-16, ethoxylated	68002-97-1	20.00000	0.00001	
			2-Hydroxypropanol	57-55-6	10.00000	0.00000	
			Other ingredients	Proprietary	1.00000	0.00000	
AI-303	U.S. Well Services	Acid Corrosion Inhibitor					
			Ethylene glycol	107-21-1	40.00000	0.00001	
			Butyl cellosolve	111-76-2	20.00000	0.00000	
			Formic acid	64-18-6	20.00000	0.00000	
			Cinnamaldehyde	104-55-2	20.00000	0.00000	
			Polyether	60828-78-6	10.00000	0.00000	
			Acetophenone,thiourea,formaldehyde polymer	68527-49-1	5.00000	0.00000	

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)