

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/11/2013
Job End Date:	4/20/2013
State:	Pennsylvania
County:	Allegheny
API Number:	37-003-22232-00-00
Operator Name:	Range Resources Corporation
Well Name and Number:	Bovard, Dorothy Unit #6H
Longitude:	-79.75376000
Latitude:	40.63453600
Datum:	NAD83
Federal/Tribal Well:	NO
Total Base Water Volume (gal):	5,113,145
Total Base Non Water Volume:	



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
37% HCL	FracTech	Cleans Perforation	HCL	7647-01-0	37.00000	0.02469	
MC B-8520	Multichem	Antibacterial Agent	4,4-Dimethyloxazolidine	51200-87-4	100.00000	0.01833	
			3,4,4-Trimethyloxazolodine	75673-43-7	5.00000	0.00090	
			2-Amino-2-methyl-1-propanol	124-68-5	1.00000	0.00017	
MC B-8650	Multichem	Antibacterial Agent	Glutaraldehyde	111-30-8	60.00000	0.00485	
FRW-300	FracTech	Friction Reducer	Ethylene Glycol	107-21-1	5.00000	0.00212	
FE100L	FracTech	Iron Chelator	Citric Acid	77-92-9	55.00000	0.00085	
CI-150	FracTech	Corrosion Inhibitor	Ethylene Glycol	107-21-1	30.00000	0.00018	
			Organic Amine Resin Salt	Proprietary	30.00000	0.00018	
			Isopropanol	67-63-0	30.00000	0.00018	
			Aromatic Adehyde	Proprietary	10.00000	0.00006	
			Dimethylformamide	68-12-2	10.00000	0.00006	
			Quarternary Ammonium Compound	Proprietary	10.00000	0.00006	
			Diethylene Glycol	111-46-6	1.00000	0.00001	

NE100	FracTech	Non-Emulsifier					
			2-Butoxyethanol	111-76-2	10.00000	0.00003	
			2-Propanol	67-63-0	10.00000	0.00002	
			Dodecylbenzenesulfonic Acid	27176-87-0	5.00000	0.00002	
			Benzene, C10-16 Alkyl Derivatives	68648-87-3	0.04200	0.00000	
			Unsulphonated Matter	Proprietary	0.02800	0.00000	
			Sulfuric Acid	7664-93-9	0.01400	0.00000	
			Sulfur Dioxide	7446-09-5	0.00140	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.							
Water	Range Resources	Carrier					
			H2O	7732-18-5	100.00000	88.56415	
Sand	Range Resources	Proppant					
			Crystalline Silica	14808-60-7	100.00000	11.29451	
FRW-300	FracTech	Friction Reducer					
			Water	7732-18-5	60.00000	0.02263	
			Aliphatic Hydrocarbon	Proprietary	30.00000	0.01211	
			Anionic Polymer	Proprietary	30.00000	0.01211	
			Oxyalkylated Polymer	Proprietary	5.00000	0.00202	
			Oxyalkylated Alcohol	Proprietary	5.00000	0.00202	
			Sodium Chloride	7647-14-5	5.00000	0.00202	
			Ammonium Thiocyanate	1762-95-4	1.00000	0.00040	
			Polyol Ester	Proprietary	5.00000	0.00004	
			Polyglycol	25322-68-3	0.10000	0.00004	
MC-B-8520, MC-B-8650	MultiChem	Scale Inhibitor & Antibacterial Agent					
			Water	7732-18-5	75.00000	0.02400	
			Non-hazardous Solvent Package	Proprietary	50.00000	0.01712	
			Neutralized Polymer	Proprietary	10.00000	0.00342	
			Methanol	67-56-1	0.25000	0.00009	
37% HCL	FracTech	Cleans Perforations					
			Water	7732-18-5	63.00000	0.04203	
FE100L	FracTech	Iron Chelator					
			Water	7732-18-5	60.00000	0.00056	
NE100	FracTech	Non-Emulsifier					
			Water	7732-18-5	90.00000	0.00028	
CI-150	FracTech	Corrosion Inhibitor					
			Aklylene Oxide Block Polymer	Proprietary	10.00000	0.00006	
			Water	7732-18-5	5.00000	0.00003	
			Aliphatic Alcohol	Proprietary	0.10000	0.00000	
			Fatty Acid Salt	Proprietary	0.10000	0.00000	
			Fatty Acid	Proprietary	0.10000	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)