

Summary of Hydraulic Fracture Solutions - West Virginia

<u>Company</u>	<u>Composition</u>	<u>Components</u>	<u>Mass %</u>		
Schlumberger	#1	Water	99.82%		
		Sodium Chloride	<0.05%		
		Magnesium chloride	<0.04%		
		Amphoteric alkyl amine	<0.03%		
		Calcium magnesium sodium phosphate	<0.021%		
		Propan-2-ol	<0.015%		
		Acrylamide copolymer	<0.015%		
		Ammonium sulfate	<0.01%		
		Sodium sulfate	<0.004%		
		Potassium chloride	<0.002%		
		Urea	<0.001%		
		Noncrystalline silica	<0.0001%		
		Dimethyl siloxanes and silicones	<0.0001%		
		#2	#2	Water	99.70%
				Guar gum	<0.16%
Sodium chloride	<0.05%				
Magnesium chloride	<0.04%				
Amphoteric alkyl amine	<0.03%				
Calcium magnesium sodium phosphate	<0.03%				
Propan-2-ol	<0.02%				
Calcium chloride	<0.01%				
Potassium chloride	<0.01%				
Noncrystalline silica	<0.002%				
Hemicellulase enzyme	<0.001%				
#3	#3			Water	99.57%
		Guar gum	<0.16%		
		Boric acid	<0.08%		
		Sodium hydroxide	<0.06%		
		Sodium chloride	<0.05%		
		Magnesium chloride	<0.04%		
		Amphoteric alkyl amine	<0.03%		
		Calcium magnesium sodium phosphate	<0.03%		
		Propan-2-ol	<0.02%		
		Calcium chloride	<0.01%		
		Potassium chloride	<0.02%		
		Noncrystalline silica	<0.002%		
		Hemicellulase enzyme	<0.001%		