

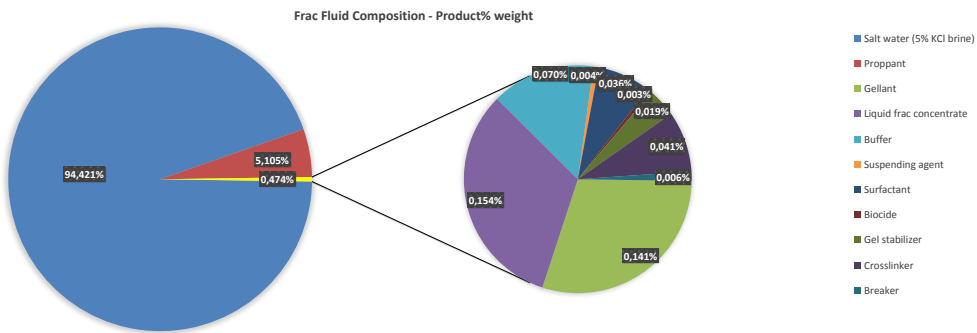
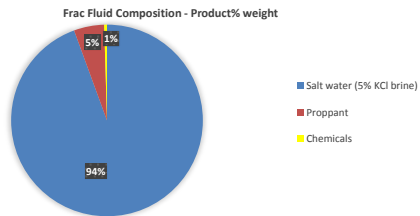
**OVERVIEW USED PRODUCTS, Kollumerpomp (KMP-4), 20 Oct 2012**

Final list (with used products and actual weights/percentages)

Products	Use	Product Weight (kg)	Product Weight (%)	Ingredient	Ingredient CAS number	Ingredient % *	Product Classification <sup>†</sup>
Salt water (5% KCl brine)	Carrier	1306934,40	94,421				none
Optiprop G2	Proppant	70659,00	5,105	Non-hazardous ingredients		100	none
GW-4AFG	Gellant	1956,00	0,141	Non-hazardous ingredients		100	none
BioBase 637	Liquid frac concentrate component	2127,20	0,154	Guar Gum	9000-30-0/232-536-8	100	Xn;R65,R66
BF-1	Buffer	73,30	0,005	Paraffins (petroleum), normal C5-C20	64771-72-8/265-233-4	100	none
				Alkenes C>8	68411-00-7/270-095-3	5	
PSA-3	Suspending Agent	49,00	0,004	Non-hazardous ingredients		100	none
D-4G	Surfactant	16,30	0,001	Non-hazardous ingredients		100	Xn;R22, Xi;R41
XC82448	Biocide	39,40	0,003	3,6,9,12,15,18,21,24-octaotatetracontan-1-ol	24233-81-6	100	Rep Cat 2,R61, T,R23, Xn;R22, Xi;R41, R43, N;R50/53
				Tetrakis(hydroxymethyl) Phosphonium Sulfate	55566-30-8/259-709-0	60	
				1,2-Ethanediamine, N,N,N',N'-tetramethyl-, polymer with 1,1'-oxybis(2-chloroethane)	31075-24-8	1	
GS-1	Gel Stabilizer	269,50	0,019	Non-hazardous ingredients		100	none
BF-7L	Buffer	891,90	0,064	Potassium Carbonate	584-08-7/209-529-3	60	Xi;R36/37/38
Fracal Ultra	Crosslinker	566,80	0,041	Non-hazardous ingredients		100	Xn;R22, Xi;R36/37/38
				Sodium Bisulphate	7681-38-1/231-665-7	0,1	
				Sodium Chloride	7647-14-5/231-598-3	0,1	
				Crystalline Silica Quartz	14808-60-7/238-878-4	0,1	
GBW-24	Breaker	60,30	0,004	Calcium Peroxide	1305-79-9/215-139-4	100	O,R8, Xi;R38, R41
				Calcium Hydroxide	1305-62-0/215-137-3	30	
				Calcium Carbonate	1317-65-3/207-439-9	10	
GBW-5	Breaker	27,00	0,002	Diammonium Peroxodisulphate	7727-54-0/231-786-5	100	O,R8, Xn;R22, Xi;R36/37/38, R42/43
Flo-Back 30	Surfactant	484,30	0,035	1-Propanaminium, 3-amino-N-(carboxymethyl)-N,N-dimethyl-, N- coco acyl deriv., hydroxides, inner salts	61789-40-0/263-058-8	100	Xi;R36
<b>TOTALS</b>		<b>1384154,4</b>	<b>100,000</b>				

Contingency chemicals	Use	Contingency product Weight (kg)	Contingency product Weight (%)	Ingredient	Ingredient CAS number	Ingredient % *	Product Classification <sup>†</sup>
Ferrotrol 300	Iron Control contingency	1,00	0,000	Citric acid	77-92-9/201-069-1	100	Xi;R36
Xanvis L(X)	Viscosifier contingency	0,00	0,000	Non-hazardous ingredients		100	none
FP-16LG	Defoamer	0,00	0,000	Ethanol	64-17-5/200-578-6	10	Xn;R65
				Paraffins (petroleum) normal C5-20	64771-72-8/265-233-4	100	
Liquid Nitrogen	Stored nitrogen gas	94403,70	99,929	Alkenes C>8	68411-00-7/270-095-3	10	none
				2-(2-butoxyethoxy)ethanol	112-34-5/203-961-6	5	
HEC	Viscosifier contingency	8,50	0,000	Non-hazardous ingredients		100	none
Sodium Carbonate (Soda Ash)	pH control	53,00	0,000	Non-hazardous ingredients		100	Xi;R36
Nitrogen Gas	Liquid lifting	5,00	0,005	Sodium Carbonate	497-19-8/207-838-8	100	none
<b>TOTALS</b>		<b>94471,2</b>	<b>99,934</b>				

Summary	Product Weight (kg)	Product Weight (%)
Salt water (5% KCl brine)	1306934,40	94,421
Proppant	70659,00	5,105
Chemicals	6561,00	0,474
specified below:		
Gellant	0,141	
Liquid frac concentrate	0,154	
Buffer	0,070	
Suspending agent	0,004	
Surfactant	0,036	
Biocide	0,003	
Gel stabilizer	0,019	
Crosslinker	0,041	
Breaker	0,006	
<b>Total</b>	<b>1384154,40</b>	<b>100,000</b>



\* Total percentage of composition might not equal 100% - exceedance of 100% is possible because maximum concentrations of hazardous chemicals are included if ranges are given in MSDS, totals lower than 100% are possible because non-hazardous solvents (i.e. water) are not included in the composition

† Classification according to Dutch law at time of execution, explanation about the danger symbols or the R-sentences can be found on Wikipedia ([https://en.wikipedia.org/wiki/European\\_hazard\\_symbols\\_resp](https://en.wikipedia.org/wiki/European_hazard_symbols_resp), [https://en.wikipedia.org/wiki/List\\_of\\_R-phrases](https://en.wikipedia.org/wiki/List_of_R-phrases))